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Kimberlites of the Lake Timiskaming Structural Zone: Supplement

by

R.P. Sage

2000

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Kimberlites of the Lake Timiskaming Structural Zone: Supplement

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ABSTRACT

The additional data presented herein as a supplement to Sage (1996) expands considerably the database on kimberlite occurrences along the Lake Timiskaming Structural Zone. The additional data suggests that the reversibly polarized kimberlite pipes tend to be younger and contain lower concentrations of kimberlite indicator minerals. The compositions of the kimberlite indicator minerals indicate that diamond is likely to occur within kimberlites along the trend of the Lake Timiskaming Structural trend. Kimberlites that occur the farthest away from the Lake Timiskaming Rift Structure may be more favourable to higher concentrations of diamond than those located nearby.

The garnet compositions found at the Seed and Tandem-1 kimberlites define two trends; one of lherzolite and one of spinel-bearing peridotite. These two trends have not been previously recognized in other Ontario kimberlites. The dating of the Tandem-1 kimberlite indicates it is the oldest kimberlite so far recognized along the Lake Timiskaming Structural Zone in spite of being relatively fresh and unaltered. Kimberlite emplacement along the trend of the Lake Timiskaming Structural Zone spans the period of 164 to 125 Ma (Sage 1996, this report).

Kimberlites display a preference to being emplaced along the trend of the Lake Timiskaming Structural Zone where this trend is crossed by lineaments, faults, or major lithologic breaks.

The location of additional kimberlites along the Lake Timiskaming Structural Zone trend is excellent. Most kimberlites that occur along this trend have not likely been identified and many targets remain. The kimberlites display wide variations in mineral compositions and relative kimberlite indicator mineral abundances. Closely spaced pipes can be considerably different in diamond content. Kimberlites are also composite intrusions and it can be expected that wide variations in indicator mineral compositions, content, and diamond potential may exist between the various intrusive phases. The diamond potential of a kimberlite can not be determined until all the phases are properly tested.

Sage, R.P. 2000. Precambrian geology. Kimberlites of the Lake Timiskaming Structural Zone: Supplement. Ontario Geological Survey, Open File Report 6018, 123p. (with appendix).

Frontispiece. Ruby corundum from the discovery drilling, Tandem-1 kimberlite, Matheson, Ontario. Samples provided by Tandem Resources Ltd.

INTRODUCTION

Exploration for diamond-bearing kimberlites remains active along the northwest-trending Lake Timiskaming Structural Zone (Figure 1). At the request of clients, data has been previously released on some of the kimberlites along the Lake Timiskaming Structural Zone (Sage 1996). The report by Sage (1996) was released prior to completion of work on the OPAP, Glinkers, McLean, Peddie and Seed pipes. This report does not duplicate the information presented by Sage (1996) and the reader should use this report as a supplement to the original document. This report does include some revisions to the earlier document (Sage 1996) as well as new data.

Discovery of the ruby-bearing Tandem-1 kimberlite pipe in Guibord Township, north of Kirkland Lake prompted its inclusion here. The Tandem-1 kimberlite displays well-preserved kimberlite mineralogy, not typical of most kimberlites along the Lake Timiskaming Structural Zone.

Erratum

Please note that in the original document "Kimberlites of the Lake Timiskaming Structural Zone" (Sage 1996: Ontario Geology Survey, Open File Report 5937), all longitudes are incorrectly labelled in the text as "east": all longitudes should read "west".

ACKNOWLEDGEMENTS

Samples for the OPAP kimberlite pipe were provided by John Ewanchuk, Consolidated Pine Channel Gold Corp. and Monpros Ltd. Material from the Peddie and McLean kimberlites was provided by Consolidated Pine Channel Gold Corporation and, late in the project, the Peddie kimberlite was trenched by the Geological Survey of Canada and surface sample material collected. Material for the Seed and Glinkers kimberlite pipes was supplied by Consolidated Pine Channel Gold Corp. and Monopros Ltd. Abundant sample material was provided from the Tandem-1 kimberlite pipe by Tandem Resources Ltd. All sample material consisted of diamond drill core, with the exception of the material taken from trenching on the Peddie kimberlite pipe by the Geological Survey of Canada.

John Ewenchuk, prospector; Dale Hoffman, President, JNR Resources Inc. (Consolidated Pine Channel Gold Corp.); Don Boucher, Senior Exploration Geologist, Monopros Ltd.; Mel Rennick, Consulting Geologist for Tandem Resources Ltd.; Stan Hawkins, President, Tandem Resources Ltd.; Beth McClenaghan, Quaternary Geologist, Geological Survey of Canada and Bruce Kjarsgaard, Geological Survey of Canada have all contributed time and material to this project. The abundance of sample material provided by Tandem Resources Ltd. is especially noteworthy and of great assistance to the program.

Monopros Ltd. is specially thanked for providing funding for a portion of the geochronological work presented in this study. The geochronological data within this report is largely due to the effort of Don Boucher, Senior Exploration Geologist, Monopros Ltd. in cooperation with Consolidated Pine Channel Gold Corp. and Tandem Resources Ltd.. Brief descriptions of kimberlites in the New Liskeard area prepared by geologists working for Monopros Ltd. have been helpful (Burgers et al. 1998).

Sample material for 95-1, 95-3 and 96-1 kimberlites was not available.

The microprobe analyses presented in this report were completed by or under the supervision of Dave Crabtree, Microprobe Scientist, Geoscience Laboratories, Ontario Geological Survey. Early in this work Steve Pianosi, Geological Assistant, provided much needed support in data interpretation and presentation. John Ayer, Brian Berdusco, Denver Stone, Sara McIlraith and Steve Josey, Ontario Geological Survey, have at various times provided assistance in computer manipulation of the data. The final preparation of the figures and diagrams for this report was by Sara McIlraith.

PHYSIOGRAPHY

No surface outcrops exist and most kimberlites occur in low marshy ground. The Peddie and McLean kimberlite pipes occur close to surface and can be reached by trenching.

FIELD PROCEDURES

All samples are derived from industry donations since none of the kimberlite pipes are exposed at surface. Some sample material from the Peddie kimberlite pipe was obtained from trenches prepared by the Geological Survey of Canada.

PREVIOUS WORK

There is no previously published work on these kimberlites. All information is the result of efforts by the mineral exploration industry. Some of these data have been submitted for Assessment Work credit and are accessible for study in the Resident Geologists Office, Kirkland Lake. The reader should refer to recent publications on selected pipes for additional information on the B-30, C-14, Diamond Lake, A-4 and Peddie kimberlite pipes (McClenaghan et al. 1996; Armstrong et al. 1997; McClenaghan et al. 1998; McClenaghan et al. 1999a, 1999b, 1999c).

GEOLOGY

The local and regional geology of kimberlite has been previously discussed by Sage (1996) and the reader should refer to this document for this information.

INDICATOR MINERALS

A revised discussion of kimberlite indicator mineral chemistry is provided in the discussion of the James Bay Lowlands kimberlites (Sage 2000). A revised table for some indicator mineral chemistry is presented in this report for the B-30 kimberlite pipe.

STRUCTURAL GEOLOGY, REGIONAL AND LOCAL: AN UPDATE

Kimberlites in eastern and northern Ontario occur along a trend at approximately 325° of which the Lake Timiskaming Structural Zone is one expression. In the northern part of the province, this trend is reflected by the trend of the Winisk River fault forming the Winisk River and Sachigo subprovince boundary. This

northwest trend, which appears to include most kimberlites in Ontario, contains no single geological or geophysical feature that would connect them to a clearly identifiable structural element. This northwest trend is roughly orthogonal or highly oblique to the Grenville Front deformation zone, Kapuskasing Structural Zone, Cape Henrietta Maria Arch, and Fraserdale Arch (Sage 2000). The trend is roughly parallel to the trend of the Winisk River fault, outcrop pattern of the Sutton Inlier, the Severn Arch, and regional-scale swarms of Archean and Proterozoic diabase dikes (Sage 2000). In the northern portion of the province, this northwest trend is subparallel to the Severn–Frontenac Arch. This northwest trend includes the pseudokimberlites and alkalic rocks in the Sextant Rapids area where this trend intersects the northeast-trending Kapuskasing Strucutural Zone. The Attawapiskat kimberlites are found within or proximal to the Winisk River fault zone that separates the Sachigo and Winisk River subprovinces (Sage 2000).

This northwest trend can be extended southeast to New York State where kimberlite dikes are known to occur (*see* Sage 1996 for references). With considerable imagination, the northwest trend can be extended to Lac De Gras where the kimberlite distribution pattern is dominated by a pronounced northwest trend and a subordinate northeast trend similar to trends as found in Ontario (Pell 1997).

The Lake Timiskaming Structural Zone kimberlites occur at intersections between the regional northwest trend and more local lineaments, faults and lithologic boundaries. While regionally the distribution of kimberlites follows a northwest pattern, in detail, local clusters of kimberlite pipes may reflect a distribution oblique to the northwest trend and influenced by cross structures. Along the Lake Timiskaming Structural Zone, faults and lineaments display groupings into north-south, northeast and northwest trends and these intersecting patterns have broken the crustal rocks into polygonal blocks. Kimberlite intrusions display a preference at being emplaced at intersection points along these structural trends. The Lake Timiskaming Structural Zone remains seismically active (Bent 1996; Adams 1989).

Cobalt – New Liskeard Area

In the Cobalt – New Liskeard area, kimberlites occur on both flanks of the Lake Timiskaming Structural Zone (Figure 2). The Guigues pipe in Quebec occurs immediately west of the Quinze Dam Fault and just east of the Hudson Bay paleolineament (Kutina and Fabbri 1972) close to the contact between the Baby volcanic rocks (south) and Pontiac metasedimentary rocks (north). Lineament trends intersect at or close to the site of emplacement. The Notre-Dame-du-Nord pipes at the north end of Lake Timiskaming have been emplaced into a wedge-shaped block bounded on the west by the Blanche River fault and the Hudson Bay paleolineament on the east (Kutina and Fabbri 1972; Figure 2).

Near Cobalt and New Liskeard, numerous kimberlite pipes occur where more conspicuous northwest-trending faults are intersected by local northeast-trending cross faults. Mapping by Thomson (1956, 1960) and Russell (1984) suggests that the bedrock in this region is broken into many blocks defined by these two trends. The more westerly pipes in this area (95-1, 95-3 and 96-1) are located near the northwest extension of the 320° trending South Montreal River fault.

The Bucke and Gravel kimberlite pipes occur adjacent to the Mckenzie Creek fault (Thomson 1960) at the intersection of the north-south striking topographic South Wabi Creek Zone (R. Zalnieriunas, personal communication, 1995).

Kirkland Lake Area

Kimberlites of the Kirkland Lake area occur along the extension of the northwest trending Lake Timiskaming Structural Zone between the Larder Lake – Cadillac deformation zone to the south and the

Destor–Porcupine deformation zone to the north (Figure 3). The general absence of kimberlite intrusion between these deformation zones may or may not be the result of a lack of exploration activity.

In the Kirkland Lake region, the A-1, AM47 and A-4 kimberlite pipes lie along a topographic lineament in the bedrock beneath the Munro esker (Fortescue et al. 1984; Figure 3). This feature, known as the Victoria Lake lineament, occurs where inflections of isomagnetic contours can be interpreted as the result of faulting in the bedrock.

West of the Victoria Lake lineament, and at approximately the same distance from the lineament, lie the Morrisette Creek and B-30 kimberlite pipes. These kimberlite intrusions may lie along a structure subparallel to the Victoria Lake lineament, but there is no geological or geophysical evidence for its existence. Mapping by Rupert and Lovell (1970) and Jensen (1972) indicate that extensions of northwest-trending faults pass through or near to these kimberlite pipes. These unnamed local faults trend at 300° (Morrisette Creek) and 310° (B-30) somewhat oblique to the 325° northwest regional trend postulated for the Lake Timiskaming Structural Zone.

East of the Victoria Lake lineament, the C-14 kimberlite pipe in Clifford Township lies close to or along the 045° trending Murdoch Creek – Kennedy Lake fault (Figure 3) and minor northeast-trending faults (Jensen 1974).

The Diamond Lake kimberlite pipe lies beneath the Misema esker in western McVittie Township and occurs along the flank of a diabase dike. Fortescue et al. (1984) has indicated that many esker complexes in the area follow topographic lows that may represent faults or lineaments. There is no geophysical or geological evidence of such a feature below the Misema esker. West of the Diamond Lake kimberlite pipe in eastern Gauthier Township, Thomson and Griffis (1941) identified faulting at 300° and, in the western portion of McVittie Township, Thomson (1941) recognized 015° trending faulting. The northwest-trending faulting in Gauthier Township is part of the Larder Lake – Cadillac deformation zone. The Diamond Lake kimberlite occurs just north of the Larder Lake – Cadillac deformation zone along the southwest extension of northeast trending (015°) faulting in western McVittie Township.

There are no recognized kimberlite pipes between Kirkland Lake and the kimberlite pipes in Guibord and Michaud townships east of Matheson. The recognized pipes occur in the southern portion of Guibord Township while kimberlite dikes occurs as far east as Garrison Township (Figure 4). The pipes occur where the east–west striking Destor–Porcupine Deformation Zone intersects the northwest extension of the Lake Timiskaming Structural Zone, and the diking extending to the east appears to occur within or marginal to the Deformation Zone. All the kimberlite pipes within Guibord Township occur within or proximal to the Destor - Porcupine Deformation Zone and crudely define a generally east-west pattern of distribution. All the kimberlite pipes and dikes within this area east of Matheson were located by gold prospectors.

GEOPHYSICS

The reader should refer to Sage (1996) for a discussion of the geophysical expression of kimberlite pipes in this region. Figure 5 presents the isomagnetic contour patterns of kimberlite pipes examined for this report. The isomagnetic contour pattern of the OPAP kimberlite pipe has been given by Sage (1996). The kimberlite intrusions commonly display oval to circular isomagnetic contour patterns and some appear to be highly elongated suggesting the possibility that they are "blows" along a kimberlite dike.

In 1994 and 1995, the Notre-Dame-du-Nord (NDN) No. 1 and No. 2 pipes along the Ontario–Quebec border and the OPAP kimberlite with negative magnetic polarity were discovered. Subsequent to discovery of the OPAP pipe, testing of negative magnetic features has located the Glinkers, McLean, Seed, 95-1 and 96-1 kimberlite pipes in the New Liskeard area. There are undoubtedly many more kimberlite pipes present displaying both positive and negative magnetic patterns.

With the exception of the Seed kimberlite, all the kimberlites displaying a negative magnetic response are younger than 142 Ma, reflective of a reversal in the polarity of the Earth's magnetic field at approximately 142 Ma (Sage 1996, this document). There is no easy explanation why this one reverse polarized kimberlite pipe is much older than the others and has an age that is common among the normally polarized intrusions. B. Kjarsgaard (Geological Survey of Canada, personal communication, 1999) suggests an explanation for this polarity reversal may be a short-lived reversal at approximately 154 Ma during what otherwise is a period of consistently normal polarity. The magnetic response of the Seed pipe warrants additional study.

GEOCHRONOLOGY

The geochronology presented here is in addition to that presented by Sage (1996). All the ages are U-Pb on perovskite obtained from crushed drill core. The dates were provided by L. Heaman, University of Alberta, and are unpublished. Four of the dates were obtained through the support of Monopros Ltd. and the cooperation of the companies supplying the sample material.

Glinkers	134.0 ± 2.0 Ma
McLean	142.2 ± 2.8 Ma
OPAP	138.8 ± 2.6 Ma
Peddie	153.6 ± 2.4 Ma
Seed	153.7 ± 1.8 Ma
Tandem-1	164.6 ± 3.0 Ma

All ages are presented at the 2σ level of accuracy. With the exception of the Seed kimberlite, the younger ages display reversed magnetic polarity and the period of kimberlite intrusion spans 40 million years and straddles a polarity reversal at approximately 142 Ma. The Tandem-1 age is much older than expected since the kimberlite is very fresh and the least altered of any pipe found on the west side of the Lake Timiskaming Structural Zone. In freshness, it is comparable to the NDN No. 1 and 2 pipes or the Guigue pipe located on the east side of the Lake Timiskaming Structural Zone in the Cobalt – New Liskeard area. Prior to this age determination, the oldest identified kimberlite in the Kirkland Lake area was A-1 dated at 159.0 ± 0.4 Ma (Sage 1996; Brummer et al. 1992). For preservation of the kimberlite mineralogy, the most comparable kimberlite occurrence in the Kirkland Lake area would be the Upper Canada dike. The preservation of the kimberlite mineralogy and texture in the Tandem-1 pipe is in sharp contrast to other nearby kimberlites that are commonly extensively altered and younger in age.

KIMBERLITES OF THE LAKE TIMISKAMING STRUCTURAL ZONE: ADDITIONS

At the time Sage (1996) was published, work was in progress on a number of kimberlite pipes. The following sections present data from additional kimberlites plus data on the Tandem-1 kimberlite. Tandem-1 is included for it represents an unusually fresh kimberlite that hosts ruby corundum. The

microprobe data presented herein (appendix) was obtained on samples provided by John Ewenchuk, Consolidated Pine Channel Gold Corporation, Monopros Ltd. and Tandem Resources Ltd. Description of the kimberlites has been compiled from Assessment Work Files, Kirkland Lake and proprietary information.

Sample material was not available for the kimberlites located by Sudbury Contact Mines Ltd. and all data presented is from the Assessment Work Files, Kirkland Lake. The company has located 4 kimberlite occurrences, but the author does not know the precise location of the last discovery. The fourth kimberlite, known as MR6, is located in the northwestern portion of Hudson Township. Sudbury Contact Mines Ltd. has completed soil sampling for kimberlite indicator minerals, magnetic and VLF surveys, reverse circulation drilling and diamond drilling in Lundy, Hudson and Bucke townships. The magnetic maps for Figure 5 were compiled from Assessment Work Files, Kirkland Lake, No. 2.17034 and 2.17038.

95-1

Kimberlite 95-1 was found by Sudbury Contact Mines Ltd. in 1995 in the southeast corner of Lundy Township using reverse circulation drilling in holes LU-2, 3 and 4 (Figure 5). The intrusion is located at approximately latitude 47.538193°N and longitude 79.929535°W. The isomagnetic contour map (Figure 5) displays a negative elongated pattern (250 by 100 m) suggesting the intrusion could represent a "blow" along a dike trending approximately 045°. The kimberlite lies close to the extrapolated extension of the South Montreal River fault (Figure 2).

In 1996, the kimberlite was penetrated by 3 angled holes to obtain a bulk sample for testing of the diamond content. A total of 313.6 kg of material was tested for diamond content using caustic dissolution and none recovered (Assessment Work Files, Kirkland Lake). A 64 kg sample was tested for indicator mineral content using attrition milling (Assessment Work Files, Kirkland Lake). Attrition milling recovered 62 pyrope, 147 possible eclogitic almandine-pyrope, 67 chrome diopside, 14 picroilmenite and/or picrochromite, but their chemistry was not confirmed by microprobe analysis. Diamond drilling totals 624 m and the company classified the kimberlite as heterolithic volcaniclastic diatreme breccia (Assessment Work Files, Kirkland Lake). The diamond drill logs indicate that the kimberlite intruded the Firstbrook formation of Huronian age and that the Firstbrook formation has been brecciated, cemented with carbonate and diked with hypabyssal kimberlite. The drill logs also indicate that the diatreme breccia has been intruded by later hypabyssal kimberlite dikes (Assessment Work Files, Kirkland Lake).

95-3

Kimberlite 95-3 lies on grid 95-3 (Assessment Work Files, Kirkland Lake, No. 2.17038) and has been recently referred to as kimberlite 95-2 (Assessment Work Files, Kirkland Lake, No. 2.1756). This kimberlite displays a weak to moderate, positive, isomagnetic contour pattern that is somewhat oval in shape (350 by 200 m) (Figure 5). The long axis of the magnetic anomaly trends at approximately 290° and lies in the region of the extrapolated extension of the South Montreal River fault. The kimberlite is located at approximately latitude 47.523342°N and longitude 79.891632°W in the southeast corner of Lundy Township. The presence of kimberlite was established in 1995 by reverse circulation drilling (holes LU95-07, 08) (Assessment Work Files, Kirkland Lake). The pipe was sampled by 4 diamond drill holes, totalling 842.8 m in 1995 (Assessment Work Files, Kirkland Lake) (Figure 5).

The company recovered 52 diamonds (19 macros and 33 micros) from a 2400 lb (1104 kg) sample (Sudbury Contact Mines Ltd., press release, January 29, 1996; Annual Report for Sudbury Contact Mines Ltd., 1996). Assessment Work File 2.17856, Kirkland Lake, reports that 3 macrodiamonds and 6 microdiamonds were recovered from 77.92 kg of reverse circulation material in 1995, 44 diamonds (no

size given) were recovered by Lakefield Research Ltd. by caustic dissolution from 1026.3 kg of diamond drill core in 1996 and 4 additional diamonds (no size given) were recovered from 220.8 kg of material that was subjected to attrition milling to obtain indicator minerals. Most of the diamonds were described as white, but several brown and yellow stones were recovered (Assessment Work Files, Kirkland Lake).

Core from the 95-3 (95-2) kimberlite pipe was examined by R.H. Mitchell for Sudbury Contact Mines Ltd. (Assessment Work Files, Kirkland Lake). The dominant description of the samples is pelletal-textured diatreme facies volcaniclastic kimberlite breccia, however, some diatreme facies volcaniclastic kimberlite breccia and hypabyssal facies kimberlite were present. The pelletal structures consist of a serpentinized macrocrystal olivine core enveloped in hypabyssal kimberlite (Assessment Work Files, Kirkland Lake). The hypabyssal kimberlite mantles display flow aligned microphenocryst and/or macrocrystal phlogopite, brown perovskite, subhedral to euhedral spinel in a matrix of carbonate and serpentine. The reader should refer to the original report for additional details (Assessment Work Files, Kirkland Lake).

96-1

Kimberlite 96-1 is located on grid 96-1 (Assessment Work Files, Kirkland Lake, No. 2.17038) immediately east of grid 95-1. The site is at approximately latitude 47.538193°N and longitude 79.920685°W. The kimberlite was located in 1996 by reverse circulation drilling and its presence is indicated by a somewhat linear north-south isomagnetic contour pattern (500 by 150 m) (Figure 5). The anomaly is negative, as with nearby kimberlite 95-1, and also lies proximal to the northwest extension of the South Montreal River fault. The linear nature and internal closure of the isomagnetic contours of the anomaly suggests the possibility that it is a north-south trending dike along which several closely spaced "blows" may have taken place.

B-30

The B-30 kimberlite has been previously described (Sage 1996). The table of microprobe analyses listed as clinopyroxene (Sage 1996) consists of a mixture of orthopyroxene and olivine and the revised data files are presented in the appendix to this report. Sample b-30cpx2-52 (Sage 1996) is a chrome pyrope and has been removed from the tables.

Glinkers

The Glinkers kimberlite was found by Consolidated Pine Channel Gold Corp. in 1996 as part of a larger program to investigate kimberlites of the area. The intrusion is located at approximately latitude 47.468216°N and longitude 79.792473°W in Firstbrook Township. The kimberlite body is represented by a negative, circular, isomagnetic contour pattern of approximately 200 m diameter (Figure 5). The kimberlite has been drill tested by at least 13 drill holes totalling 580.3 m (private records). The pipe lies near the extrapolated extension of the South Montreal River fault, west of the Cross Lake fault, east of the Montreal River fault, and, along with the Seed, and possibly the 95-3 kimberlites, may lie within a fault subparallel to the Montreal River and Cross Lake faults.

Approximately 12.9 kg of diamond drill core was processed for kimberlite indicator minerals (Appendix). The material came from holes 2 and 8. The sample from hole 2 was dominated by white to blue-white celestite or barite. The material from hole 8 was dominated by olivine and garnet was rare to absent. The chromite chemistry indicates a population that falls close to the diamond inclusion field; one chromite grain falls within the diamond inclusion field (Figure 6a). The ilmenite compositions indicate a

generally reduced population that is interpreted to be favourable for preservation of diamond (Figures 6b, 6c). The kimberlite indicator mineral content was relatively low. The presence of several narrow carbonate-filled fractures suggests that the kimberlite had been subjected to post-emplacement brittle deformation and alteration.

The kimberlite contains angular lithic clasts of limestone, fine-grained mafic rock and Firstbrook(?) formation (Table 1). Some clasts display a narrow 1 to 3 mm wide bleached rim, but most appear relatively unaltered. The olivine occurs as rounded anhedral grains replaced by very fine-grained serpentine, chlorite and carbonate. Most of the olivine was totally replaced, but several thin sections of kimberlite in hole 8 displayed fresh material. The phlogopite is present as tabular subhedral grains that displays some chloritic alteration. The opaque minerals are anhedral to euhedral and disseminated throughout. The matrix consisted of brown to reddish brown very fine-grained material composed of serpentine, carbonate and possibly some chlorite. The author would classify the kimberlite as a hypabyssal kimberlite with crustal xenoliths (Photo 1). The intrusion was classified as xenocryst-poor hypabyssal carbonate kimberlite by Monopros Ltd. (private records).

The results of testing for diamond are unknown.

The Glinkers kimberlite was examined by Burgers et al. (1998) and classified as a xenolith-poor, partially segregationary textured, phlogopite and spinel-rich monticellite-calcite Group 1 kimberlite of hypabyssal facies. The kimberlite consists of rare olivine macrocrysts and abundant pseudomorphs of olivine phenocrysts in a relatively coarse-grained groundmass consisting of laths of phlogopite, perovskite, spinel, abundant monticellite in a matrix of serpentine and calcite (Burgers et al. 1998).

McLean

The McLean kimberlite was discovered by Consolidated Pine Channel Gold Corp. in 1996. The kimberlite is located in Bucke Township at approximately latitude 47.489807°N and longitude 79.758553°W. The intrusion lies in the northwest corner of the township, northwest from the Bucke and Gravel pipes and may lie along the same structural trend as these two pipes. The intrusion is represented by a circular, negative, isomagnetic anomaly approximately 150 m in diameter (Figure 5). The kimberlite has been tested using diamond drilling, but the results are unavailable.

Approximately 3 kg of diamond drill core was processed for kimberlite indicator minerals (Appendix). Garnet is scarce in the heavy mineral concentrate, which contains abundant celestite and some barite. Olivine is common. The few garnets recovered are almost exclusively G-9, but one G-10 was identified (Figure 6d). The McLean kimberlite is chromite rich and ilmenite poor. The chromite displays compositions close to the inclusion field of diamond and several grains fall on or just inside the field. The very few ilmenites recovered all have compositions consistent with being from a reduced environment. The chemistry of the indicator minerals is similar to that of the Glinkers kimberlite pipe except for the general absence of ilmenite in the McLean pipe and a slight increase in the garnet content. The kimberlite indicator mineral content is relatively low. Several, narrow, carbonate-filled fractures suggests post-emplacement brittle fracturing has taken place.

The olivine occurs as rounded anhedral grains replaced by serpentine, chlorite, carbonate and iron oxides(?) (Table 1). The opaque minerals are anhedral to euhedral and disseminated throughout the samples. Traces of phlogopite are present and autolith structures were observed in several specimens. The very fine-grained matrix consists of serpentine, carbonate, chlorite and iron oxides. The kimberlite is dominantly an altered hypabyssal kimberlite with crustal xenoliths (Photo 2). The crustal xenoliths are angular to subrounded and some display a concentric ring of alteration while others appear fresh and unaffected. The xenoliths consist dominantly of limestone and mafic rock.

The results of testing for diamond are unknown.

Burgers et al. (1998) recently examined samples from McLean and classified the kimberlite as a porphyritic, spinel-rich, calcite-monticellite Group 1 kimberlite of the hypabyssal facies. Numerous olivine phenocrysts, rare olivine macrocrysts, along with crustal xenoliths occur in a fine-grained groundmass (Burgers et al. 1998). Burgers et al. (1998) describe the groundmass as containing perovskite and spinel, fine-grained monticellite, set in a matrix of fine-grained serpentine and coarse calcite. Burgers et al. (1998) has also noted a low content of mantle xenoliths and/or xenocrysts.

Morrisette Creek

Sage (1996) described the Morrisette Creek kimberlite pipe in the Kirkland Lake area. The location of this pipe on Map P.3321 (Zalnieriunas and Sage 1995) is in error and it should be latitude 48.208523°N and longitude 79.916840°W. Amphibole of a light to medium green colour was recovered from the heavy mineral concentrate. The microprobe data for this amphibole is presented in the appendix to this report and is discussed in the report on the James Bay kimberlites (Sage 2000). The recovery of significant amphibole from a kimberlite is unusual and the author interprets it to be a late-stage crystallization of the kimberlite magma.

OPAP

The OPAP pipe is located at latitude 47.459267°N and longitude 79.742928°W in west-central Bucke Township. Sage (1996) has described this kimberlite. Microprobe study of the kimberlite indicator minerals was in progress at the time Sage (1996) was released. This discussion will be restricted to the new microprobe data, which are presented in the appendix to this report. The OPAP kimberlite is low in kimberlite indicator mineral content with chromite being the most common. In an attempt to obtain sufficient garnet, approximately 40 kg of material was processed in four batches. All the garnet was picked, and while the number of grains eventually exceeded 200, it can be safely assumed that the crushing of the sample has created multiple garnet grains from the few megacrysts present. The data clustering on Figure 6d may reflect multiple analyses of fragments from the same megacryst. All the G-10 analyses display a relatively tight grouping suggesting that there may have been only one G-10 megacryst that was broken into many fragments during sample preparation. To obtain 200 or more grains with reasonable confidence that there is no duplication would require a far greater amount of sample material. If a large bulk sample is taken from this kimberlite, an effort to collect additional indicator mineral material for study is warranted.

The data indicate a kimberlite with a dominant G-9 garnet population. The chromite compositions occur close to and just within the diamond inclusion field. The chromite compositions would indicate a kimberlite favourable for the presence of diamond. The rarity of ilmenite prevents speculation on the diamond preservation potential.

Consolidated Pine Channel Gold Corp. optioned the OPAP kimberlite pipe in 1995 and completed a magnetic survey over the pipe and 6 diamond drill holes totalling 742.8 m (Assessment Work Files, Kirkland Lake). Samples were sent to Kennecott Canada Exploration Inc. and possibly Lakefield Research, but diamond recovery results are unavailable (Assessment Work Files, Kirkland Lake). Kennecott Canada Exploration Inc. completed studies on the indicator mineral content (Assessment Work Files, Kirkland Lake, File 2.18072). The company completed 6 additional holes in the area for a total of 239.72 m (Assessment Work Files, Kirkland Lake). This drilling did not intersect kimberlite. Holes BKF-1 and BKF-2, totalling 200.25 m on claim 1223328, were completed on the Peddie kimberlite (Assessment Work Files, Kirkland Lake).

Sage (1996) classified the OPAP pipe as diatreme facies tending toward hypabyssal facies with xenoliths. More detailed study by Burgers et al. (1998) classified the pipe as a phlogopite-bearing monticellite Group 1 tuffisitic kimberlite of the diatreme facies. The kimberlite was described as containing a variety of crustal xenoliths with pelletal lapilli and olivine macrocrysts in a pale-brown, inter-lapilli matrix of serpentine, microlitic diopside and rare, poorly developed spinel and phlogopite (Burgers et al. 1998). Burgers et al. (1998) describe the lapilli as containing coarse-grained olivine macrocyrsts and phenocrysts in a groundmass of rare perovskite, microphenocrysts of phlogopite, spinel, slightly serpentinized monticellite, microlitic clinopyroxene, possible pseudomorphs of melilite in a base of serpentine and calcite. As with the author, Burgers et al. (1998) found the mantle xenolith and/or xenocryst content to be low.

Peddie

The Peddie kimberlite is located in Bucke Township at approximately latitude 47.442474°N and longitude 79.681656°W close to the McKenzie fault (Figure 2). The kimberlite is outlined by a positive, oval-shaped isomagnetic contour pattern approximately 100 by 150 m in diameter (Figure 5). The kimberlite was diamond drilled by Consolidated Pine Channel Gold Corp. Two holes, BKF-1 and BKF-2 totalling 200.25 m on claim 1223328, were completed from approximately the same site within the body (Figure 5). The kimberlite was recently trenched as part of an effort to study the relationship between the primary kimberlite indicator mineral content and the down-ice dispersion of the mineral indicators during glaciation (McClenaghan et al. 1999c). McClenaghan et al. (1999c) classified the bedrock kimberlite as hypabyssal-facies phlogopite macrocrystic monticellite kimberlite.

Approximately 1.5 kg of drill core from holes BKF-1 and 2 were crushed and processed for kimberlite indicator minerals. Garnet was not abundant and occurred in purple, red and orange colours. All the garnet was picked and analyzed by microprobe (data in the appendix). The analytical data was plotted on a Cr_2O_3 versus CaO diagram and all grains fell within the G-9 group (Figure 6d). Clustering of the data suggests that garnet megacrysts were crushed into many fragments and while more than 200 grains were analyzed, the data likely reflects a garnet population of much less than 200 original grains. Most of the chromite data plots outside the field of chromite included within diamond, but one grain plots well within the field (Figure 6a). The ilmenite compositions indicate a reduced environment favourable for diamond preservation (Figures 6b, 6c). After completion of the work on the core provided by Consolidated Pine Channel Gold Corp., the kimberlite was trenched by the Geological Survey of Canada giving access to large volumes of kimberlitic material. Approximately 50 kg of weathered, granular kimberlite was collected from the trench and compared with analytical results obtained from the very small original sample. The weathered kimberlite was dried and sieved, but not crushed. The garnet grain morphology should not have been damaged in the process. The garnet commonly had a frosted surface, but angular fragments with fresh surfaces that appeared freshly broken were abundant. The microprobe chemistry obtained on greater than 200 of the larger (less than 1.0 mm) grains is presented for comparative purposes in Figure 7. Neither sample suite produced a G-10 garnet and the distribution of G-9 garnets is very similar. The main difference in the two sample populations is the presence of eclogitic garnet in the trench sample and its almost complete absence in the Consolidated Pine Channel Gold Corp. sample. This is likely the product not only of the relative sample size, but also the fact that the samples came from two different areas of the kimberlite body. Kimberlites are better known for their heterogeneous nature so sample variations can be anticipated. The differences in these two garnet populations do not alter significantly any interpretation of diamond potential using either garnet data set. This comparison of two samples, one of small and the other of large size, suggests that a relatively small volume of sample material can, in some cases, characterize a kimberlite occurrence.

Lithic clasts were not abundant and consisted of angular fragments of diabase, gabbro and limestone (Table 1). Olivine is present as anhedral rounded to subrounded grains, commonly very fresh in appearance with only weak replacement by serpentine. The phlogopite occurs as subhedral to euhedral tabular grains that commonly poikilitically encloses small opaque grains. The larger phlogopite grains may display bent (001) cleavage planes. The opaque grains occur as anhedral to euhedral disseminated grains. The kimberlite matrix is a very fine-grained mixture of serpentine, carbonate and possibly some chlorite. Carbonate-filled fractures within the core samples indicates some post-emplacement brittle fracturing and alteration. The intrusion represents hypabyssal facies kimberlite with scattered crustal xenoliths (Photo 3). In contrast to the negatively polarized OPAP, Seed, Glinkers and McLean kimberlite pipes, the normally polarized Peddie pipe contains kimberlite indicator minerals in greater abundance.

The results of testing for diamond are unknown.

The Peddie kimberlite has been examined in more detail by Burgers et al. (1998) who classified it as a macrocrystic, phlogopite-bearing calcite-monticellite Group 1 kimberlite of hypabyssal facies. They report finding crustal rock xenoliths, mantle xenoliths of lherzolite composition and xenocrysts of garnet, ilmenite, spinel and phlogopite (Burgers et al. 1998). The kimberlite groundmass consisted of fine-grained phlogopite, altered perovskite, spinel, laths of calcite, granular monticellite and serpentine (Burgers et al. 1998). Burgers et al. (1998) report that mantle xenoliths and xenocrysts were abundant, but mantle xenoliths were not well represented in the small pieces of core available to the author, and those that were, were serpentinized.

Seed

The Seed kimberlite is located in Firstbrook Township at approximately latitude 47.455021°N and longitude 79.766113°W. The negative isomagnetic contour pattern is oval in outline and approximately 200 by 150 m (Figure 5). The Seed kimberlite lies close to the extrapolated trend of the South Montreal River fault and a northeast-trending fault that may join the Seed with the OPAP kimberlite.

The kimberlite was identified by diamond drilling by Consolidated Pine Channel Gold Corp. in 1995. The drilling was from one site, 2 holes, totalling 236 m (private records).

Approximately 11.552 kg of drill core was processed for kimberlite indicator minerals from 129 to 149 m and 205 to 224 m. The sample came from inclined hole 1A. The indicator mineral chemistry is presented in the appendix to this report. The garnet geochemistry shows an absence of G-10 garnet (Figure 6d). The distribution pattern defines two almost linear trends; one is eclogitic (below the 2% Cr_2O_3 line) and the other lherzolitic (to the right of the 85% line) (Kopylova et al. 1998, 1999). Kopylova et al. (1998, 1999) described a similar pattern in garnets from the Jericho kimberlite, Slave Craton, Northwest Territiories. The clustering of grains parallel to the 85% line is interpreted as the "lherzolitic" trend and the trend with a lower slope is interpreted as a "spinel–garnet equilibrium" trend representing spinel-bearing peridotite compositions (Kopylova et al. 1998, 1999). The trend has been ascribed to equilibration of garnet with a lherzolitic assemblage that includes spinel. This low Cr and high Ca trend involves a yet undefined factor (Kopylova 1998, 1999). These two trends join in the eclogitic field of the diagram to the right of the 85% line. There are two distinct garnet populations present, but their relationship is unclear. This linear distribution of garnet compositions has been observed in only one other kimberlite (Tandem-1) along the trend of the Lake Timiskaming Structural Zone. The chromite compositions all fall outside the field defined by chromite inclusions in diamond (Figure 6a). The ilmenite compositions are consistent with a reduced environment favourable to diamond preservation.

The kimberlite contains angular to subangular clasts of limestone and altered mafic rock (Table 1). Relict olivine is abundant. The grains are rounded to subrounded and replaced by serpentine. Opaque

minerals occur as small anhedral to euhedral grains disseminated throughout the rock. Trace to minor amounts of phlogopite was observed and trace amounts of perovskite occur in several specimens. Autolith structure was observed in one sample. The very fine-grained matrix consists of serpentine, carbonate and possibly chlorite. The carbonate sometimes tends to be relatively coarse grained with respect to the other matrix minerals. The kimberlite is a pervasively altered hypabyssal kimberlite containing the occasional crustal rock xenolith (Photo 4).

The results of testing for diamond are unavailable.

Burgers et al. (1998) have interpreted the Seed kimberlite as three pipes, however, the author is uncertain as to the location and definition of these three pipes. Burgers et al. (1998) observed textural variation in the pipe with depth from globular segregationary and/or transitional pelletal tuffisitic diatreme facies to globular segregationary and segregationary textures more typical of hypabyssal kimberlite. Collectively, Burgers et al. (1998) classified the kimberlite pipe as globular segregationary to segregationary phlogopite and monticellite-bearing Group 1 kimberlite of the hypabyssal facies. The mineralogy consists of pseudomorphs of olivine phenocrysts and macrocrysts in a relatively coarse-grained groundmass (Burgers et al. 1998). The matrix consists of poikilitic and glomeroporphyritic phlogopite, perovskite, spinel, apatite, carbonate, and relict monticellite in a serpentine groundmass (Burgers et al. 1998). Burgers et al. (1998) report that the globules contain the same minerals as the segregationary groundmass. Rare mantle xenoliths are reported to be present (Burgers et al. 1998).

Tandem-1

The Tandem-1 kimberlite pipe is located at approximately latitude 48.472088°N and longitude 80.216797°W in Guibord Township, 16 km east of Matheson. The pipe was discovered in February 1997 during drilling for gold mineralization. The Tandem-1 kimberlite pipe, as with all other kimberlite pipes located in Guibord Township, have been found while prospecting for gold. The Tandem-1 kimberlite is poorly defined by the total field isomagnetic contour pattern (Figure 5) and its presence could not be determined by total field magnetic patterns. The kimberlite can be identified on second derivative magnetic maps but other, nonkimberlite rocks, also provide second derivative magnetic patterns similar to the kimberlite. Consequently, second derivative maps are of limited value (Tandem Resources Ltd., unpublished data). The Tandem-1 kimberlite pipe lies proximal to the Destor–Porcupine deformation zone (Figure 4).

The Tandem-1 pipe was tested in 1997 by 4 diamond drill holes T97-09, 11, 12, and 13 totalling 829.7 m (2722 feet). The testing recovered 3 microdiamonds and 110 ruby corundums (Tandem Resources Ltd., press releases, May 15, 1997; June 9, 1997). The rubies were recovered from two samples weighing 34.7 and 53.2 kg (Tandem Resources Ltd., press release, June 9, 1997). A news release by Tandem Resources Ltd. in March 1998 (*The Northern Miner*, March 20, 1998, p.6) reported that a total of 1790 rubies were recovered from 190 kg and that 40 were macrosize (0.8 to 2.0 mm). The ruby corundums were of good colour so additional sampling was undertaken in 1998, principally to evaluate the ruby potential. Eight BQ diamond drill holes (T98-1, 2, 3, 4, 5, 6, 9, 10), totalling 1458.5 m, were completed as definition drilling. The general outline of the kimberlite is given in Figure 5, however drill hole T98-3 did not intersect kimberlite and holes T98-9 and 10 may have completely traversed the pipe since metavolcanic rock is present in the bottom of the holes. The kimberlite intrusion most likely consists of large blocks of supracrustal rock set within a kimberlite matrix. Upon completion of the definition drilling, eight subvertical PQ drill holes (T98-S1 through S8) were completed for a bulk sample. The drilling for the bulk sample consisted of 1415.9 m and the hole locations are not illustrated on Figure 5. The bulk sample was tested by the Saskatchewam Research Council, which obtained 96 ruby macrocorundums (greater than 0.5 mm), nine of which are greater than 2 mm in diameter and slightly

over 1 carat in weight (Tandem Resources Ltd., press release, September 29, 1998). Testing of the bulk sample is continuing.

The Tandem-1 kimberlite is unusually fresh and unaltered in contrast with nearby kimberlites. Its well-preserved mineralogy is comparable with the mineralogy of the Guigues, NDN No. 1 and NDN No. 2 pipes in the New Liskeard area, but it is not typical of the kimberlite occurrences near Kirkland Lake. The kimberlite contains numerous mantle xenoliths that are also relatively unaltered. The fresh, well-preserved mineralogy suggests that this intrusion represents a much younger intrusion than those previously found in the region. Geochronological studies indicate that the Tandem-1 kimberlite is the oldest kimberlite identified in the Kirkland Lake region (*see* "Geochronology"). The Tandem-1 pipe is 5 million years older than the next oldest kimberlite pipe, which is A-1, dated at 159 ± 0.4 Ma (Sage 1996).

The olivine occurs as rounded to angular grains undergoing serpentinization along fractures or grain margins (Table 1). Over half of the kimberlite consists of olivine. Phlogopite is a minor component that displays subhedral to euhedral shapes and may have bent (001) cleavage. The opaque mineral occurs in minor quantities and is disseminated throughout the rock. The opaque minerals form rounded to euhedral grains. The lithic fragments occur as angular to subrounded clasts composed of limestone, mafic rock and locally derived metavolcanic rocks. One large fragment of limestone located during the bulk sampling consisted mostly of coral (Photos 5a and 5b). A polished surface of the coral sample was examined by Paul Copper, Laurentian Univeristy. The sample consisted of a small *Syringopora* species making up approximately 70% of the fossil material, a small branching favositoid, possibly a thamnoporid but with thinner walls and some rhynchonellid brachiopod shell fragments (Paul Copper, Laurentian University, personal communication, August 1999). The fossil material was interpreted to be the Middle Devonian (Paul Copper, Laurentian University, personal communication, August 1999). The kimberlite matrix consists of a very fine-grained mixture of serpentine, carbonate and possibly traces of chlorite. The kimberlite represents the hypabyssal facies with scattered xenoliths from the enclosing wall rocks. Mantle xenoliths are relative common (Photo 6).

The mantle xenoliths are fresh, rounded and up to 6 to 7 cm in diameter. The xenoliths consist dominantly of orthopyroxene, clinopyroxene with and without olivine. Garnet was not abundant in the thin sections, but was present in minor amounts in most (Table 2). A number of xenoliths were olivine free consisting only of two pyroxenes plus garnet. These two pyroxene rocks are websterite and those with two pyroxenes plus olivine are lherzolite. In general, the xenoliths display a fine- to coarse-grained inequigranular, hiatal, allotriomorphic granoblastic texture with curved grain boundaries (Photo 7). Several specimens display subparallel fractures along which serpentinization has taken place (Photo 8). Rare twinning was observed in the clinopyroxene within several specimens (Photo 9; *see* Table 3, sample 98-55-154.3 for microprobe chemistry). These xenoliths suggest that at least some of the mantle rock had been subjected to mild deformation. The predominant rock type is a garnet websterite with lesser garnet lherzolite. One specimen of garnet harzburgite was recognized. The microprobe analysis resulting from examining a select group of mantle xenoliths is presented in Table 4. Several xenoliths contained a few grains of possible chromite that were too small for analysis.

The indicator mineral suite was obtained from concentrate prepared by Lakefield Research from diamond drill core and donated to the Ontario Geological Survey by Tandem Resources Ltd. The indicator minerals are a composite suite prepared from hole T97-09 (365 to 523 feet) (111.2 to 159.4 m) and hole T97-13 (213 to 433 feet) (64.9 to 132 m) (Appendix). The distribution of garnet compositions outlines a tilted, inverted "V" pattern (Figure 6d). One leg of this inverted "V" starts with a cluster of compositions in the garnet harzburgite field (G-10) meeting with the other leg of the "V" in the lherzolite field (G-9) is referred to as the "lherzolite trend" (Kopylova et al. 1998, 1999). The other leg of the inverted "V" starts with a cluster of compositions in the eclogitic field where Cr_2O_3 is less than 2%. This pattern of two linear trends of garnet compositions has been observed only in the Seed pipe. The Seed

pipe (Figure 6d) also has two linear trends, one eclogitic and one lherzolitic, that intersect in the ecologitic field forming a tilted "V" pattern. In the Seed pipe, the ecoligitic trend, or the "spinel–garnet equilibrium trend", represents compositions from spinel-bearing peridotite similar to the Jericho kimberlite, Northwest Territories (Kopylova et al. 1998, 1999). Kopylova et al. (1998, 1999) attributed this pattern to equilibration of garnet with a lherzolitic mineral assemblage. In the Seed and Jericho kimberlites, the V-shaped garnet compositional pattern opens to the right, whereas in the Tandem-1 kimberlite it opens to the left. The Seed and Jericho patterns contrast with the Tandem-1 pattern in the orientation of the linear trends and the absence of G-10 garnet. In contrasting Tandem-1 with Seed or Jericho, the Tandem-1 trend is one of increasing Cr and decreasing Ca. Tandem-1 contains abundant chromite and rare ilmenite indicating it is a chrome-rich kimberlite. The Tandem-1 pattern may represent two garnet populations that have been metasomatically altered. The Tandem-1 pipe has one of the highest, if not the highest, G-10 content of any pipe found along the Lake Timiskaming Structural Zone trend. This favourable indicator mineral chemistry, compared with other pipes along the Lake Timiskaming Structural Zone trend, would suggest Tandem-1 is more favourable to hosting diamond than other kimberlite pipes within the region.

The Tandem-1 pipe is chromite rich. The chromite occurs as octahedra of dull and brilliant lustre and as more anhedral grains. The chromite compositions fall close to, but not within the composition field of chromite included within diamond (Figure 6a).

As with several other kimberlite pipes found along the Lake Timiskaming Structural Zone, the Tandem-1 contains little ilmenite. See the data for OPAP and McLean in this report for examples.

The Tandem-1 kimberlite is unique in the presence of ruby red corundum with a pleasing red colour and some grains are perhaps of gem quality. A compilation of corundum analyses from kimberlite (Table 4) should be compared with corundum analyses in the appendix for Tandem-1. The Tandem-1 kimberlite ruby corundum is rich in Cr2O3 which may exceed 5% in some grains (Appendix). The Tandem-1 ruby corundum is richer in chrome than any other reported kimberlite corundum (Table 4). The corundum was recovered from heavy mineral concentrate so its relationship to other mineral phases is unknown. It is not known whether the corundum occurs as xenocrysts or within xenoliths. Corundum occurs in uncommon to rare xenoliths of corganite (cor + gar); corgaspinites (cor + gar + sp); grospydite (gar + cpx + ky ± cor) and corundum eclogite (Sobolev et al. 1968; Smyth et al. 1984; Mazzone and Haggerty 1989). These rare xenoliths were recovered from the Jagersfontein, Bobbejaan and Zagadochnaya kimberlite pipes and broadly grouped within the eclogite family.

The presence of a relatively large number of chrome-rich pyrope garnets, chrome-rich corundum and abundance of chromite indicated that the Tandem-1 kimberlite is one of the more chrome-rich kimberlites so far identified along the Lake Timiskaming Structural Zone.

A group of 11 mantle xenoliths were examined in thin section and their mineral phases analyzed by microprobe (Tables 2 and 3). These xenoliths were selected on the basis of size (greater than 4 cm) and unaltered appearance. Thin section examination indicated that 5 xenoliths were garnet websterite, 5 were lherzolite and garnet lherzolite and 1 is garnet harzburgite (Table 2). The microprobe analysis indicated that most grains do not display well-developed compositional zoning. Berman (1991) suggests that in high-grade (temperature) rocks, prograde compositional zoning is homogenized by diffusional equilibration. Such processes are likely at mantle depths. Consequently, diffusional equilibration may account for the lack of strong compositional zonation. The analyzed grains were selected from up to 3 sites in each specimen and the sites were selected where the grains displayed contact relations so that equilibrium could be assumed.

D. Stone, of the Ontario Geological Survey, using the TWQ202 program developed by Berman (1991) investigated the xenolith analytical data. The program assesses mineral equilibria conditions. The compositions of the mantle xenolith minerals were used to determine pressure and temperature equilibrium paths (Figure 8). The intersection of these equilibrium paths should determine a common point characteristic of the conditions under which the mineral assemblage formed. Figure 8 displays intersection points for 9 of the 11 xenoliths with 2 xenoliths, 98-58-145.0 and 98-58-207.8, in disequilibrium. A very broad range of pressure and temperature conditions are indicated (Figure 8). Most of the intersection points define temperatures and pressure conditions outside the diamond stability field. The temperatures and pressures range from 900 to 1326°C and 25.2 to 54.9 kbar and are comparable to the range of values found by Meyer et al. (1994) from mantle xenoliths collected from the C-14 pipe near Kirkland Lake. In general, Meyer et al. (1994) examined a mantle xenolith suite that displayed higher temperature and pressure conditions. Most of the C-14 xenoliths equilibrated within the stability field of diamond while most the Tandem-1 xenoliths equilibrated outside the diamond stability field.

The pressure and temperature values were plotted on a pressure–temperature diagram on which a geotherm of 40 mW/m^2 was placed. This is the same geotherm as used by Meyer et al. (1994). On this plot (Figure 9), only one sample, 98-56-54.5, plots within the stability field of diamond. In general, the distribution of points suggests that xenoliths containing olivine represent more favourable pressure and temperature conditions than those olivine-absent xenoliths (websterites).

The wide range of pressure and temperature values suggests that the xenolith suite is in disequilibrium or has multiple sources. The xenolith suite has likely had a very complex history that has not been completely outlined in this very preliminary study. The pressure–temperature equilibrium study of the mantle xenoliths suggests that the kimberlite was outside the stability field of diamond, which accounts for its relatively low diamond content in spite of favourable indicator mineral chemistry.

Three xenoliths displaying garnet-olivine contact relations were selected to apply the Ni geothermometer using proton microprobe data (Griffin et al. 1989; Griffin and Ryan 1995) (Table 5). The temperatures were calculated using opposing analytical points and averages for the three specimens (Table 6). The linear equation $1000/T(K) = -0.428 \log_{10}(100K_d) + 0.84$ (Griffin et al. 1989) was applied to these adjoining garnet-olivine analyses. The calculated temperatures were commonly low relative to what would be expected for mantle-derived xenoliths (Table 6). The Ni geothermometer is based on the premise that the partition of Ni between chrome pyrope garnet and olivine in mantle xenoliths is strongly temperature dependant allowing construction of a geothermometer on the assumption that each garnet has equilibrated with olivine of uniform Ni content (Griffin and Ryan 1995). The Ni geothermometer is insensitive to major element garnet composition and pressure (Griffin and Ryan 1995).

The calculated low temperatures are consistent with at least four determinations using the TWQ202 program implying that low temperature equilibria may characterize the suite. Two adjoining analytical determinations in sample 98-58-203.0 and one in sample 98-56-54.5 gave atypical Ni contents for the suite, but provided temperature values comparable with 5 of the xenoliths using the TWQ202 program. Comparing the calculated xenolith equilibrium temperature of the three xenoliths using the TWG202 program and the Ni geothermometer equation one observes major differences. The temperatures calculated using the TWG202 program are consistently higher; 98-55-139.3, +322°C; 98-56-54.5, +41°C; and 98-58-203.0, +150°C.

The TWG202 program uses major elements while the Ni thermometer uses a single trace element. The author would assume that the use of major elements would be less susceptible to analytical variation than the use of minor elements and would favour the results obtained using the TWG202 program. Examining the data used by Griffin et al. (1989) in generating their equation, the nickel values obtained in this study are consistent with the low temperature values obtained on pyrope garnets from lherzolite

xenoliths collected from several South African kimberlite pipes. The Ni values reported by Griffin et al. (1989) for high temperature pyrope garnets are approximately 3 times the values observed in the Tandem-1 garnets (Table 6). Griffin et al. (1989) report that the high temperature peridotites are sheared and the low temperature peridotites are granular. Thin section examination of the textures of the Tandem-1 mantle xenoliths is consistent with the low temperature granular xenoliths of Griffin et al. (1989).

Griffin and Ryan (1995) report that the nickel content of garnet-peridotite olivine is essentially constant at 2900 ± 360 ppm (1 σ). The values for Ni in olivine obtained by the proton probe indicate that for the Tandem-1 kimberlite the Ni values are high. The average Ni value in sample 98-55-139.3 is 3727 ppm; sample 98-56-54.5, 3083 ppm; and in sample 98-58-203.0, 3127 ppm (Table 6). Samples 98-55-139.3 and 98-56-54.5 lie within the 1 σ variation established by Griffin and Ryan (1995), however, the nickel values in sample 98-58-203.0 greatly exceed the 1 σ limit. The low temperatures obtained using the equation for the Ni geothermometer developed by Griffin et al. (1989) can be explained by the relatively low Ni content of the garnet and relatively high Ni content of the olivine pair. This suggests the possibility of a disequilibrium relationship between the garnet-olivine pairs in this xenolith sample suite.

Kopylova et al. (1998) suggests that Y (greater than 10 ppm) and Zr (greater than 30 ppm) indicates a signature for cryptic mantle metasomatism. The Y values obtained by the proton microprobe on three samples commonly exceed 10 ppm, however, the Zr values do not exceed 30 ppm (Table 5). Using the Y and Zr values suggested by Kopylova et al. (1998) on this sample suite to determine the presence or absence of metasomatism gives opposing interpretations. Within individual xenoliths, the Y and Zr values appear comparable, but between xenoliths there is broad variation. This observation suggests that different xenoliths may have a different history.

The ruby corundum may be of mantle or crustal origin and Bruce Jago, Lakefield Research Ltd., suggested applying the pressure versus cell volume curve developed by Finger and Hazen (1976) to the Tandem-1 rubies to constrain their origin. The ruby corundum sample used to create the data presented in the appendix of this report was lost during transit and was replaced by a second Tandem Resources Inc. sample. The second group of corundum grains were much smaller than the first, all being less than 0.1 mm. The larger grains were broken into several very tiny fragments and one very tiny fragment from each of the 13 grains provided mounted in a single crystal Gandolfi x-ray diffraction camera (Cu Kα radiation). For each of 13 grains, 9 diffraction lines were indexed (ICDD 1993). The HKLs of each of the lines are 012, 104, 110, 113, 024, 116, 122, 214, and 300. Problems with indexing 122 in several patterns suggest that it is a double line with 018. The *a* (A°), *c* (A°) crystallographic axis and cell volume $(A°)^3$ were calculated from the indexed data by A.M. McDonald, Laurentian University using a "Celref" program. The cell values were applied to the curve presented by Finger and Hazen (1976), which is based on structural changes in ruby corundum as pressure increases (Figure 10). All the cell volumes exceeded that given by Finger and Hazen (1977) for zero pressure, implying that the method may need additional refinement (Figure 10). The data suggest that the corundum formed or equilibrated at low pressure, presumably in a crustal environment.

Upon completion of the single crystal work, the crystal fragments of ruby were carefully removed and mounted for microprobe study to see if cell volume can be related to composition. Crystal 115 was lost in this process, but 12 remained and the data are presented in Table 7. The analysis suggests a suite of ruby corundums with very high chrome contents with 6 grains exceeding 5% Cr_2O_3. Perhaps the relatively low chrome content of the synthetic (0.4 mole %) versus the relatively high chrome content of the natural rubies may have some bearing on development of the curve. A plot of chrome content on the natural rubies versus cell volume (Figure 10) presents a scatterchron suggesting chrome content does not greatly affect cell volume.

During mounting of the single crystal fragments in the Grandolfi camera, an inclusion was encountered in grain 120, which was identified by x-ray diffraction as garnet. Since the garnet was enclosed in the ruby, it can be assumed to be in equilibrium with the ruby. Its presence was the first indication of possible minerals associated with the ruby corundum within the kimberlite pipe since the ruby studied had been recovered from concentrate free of associated minerals. The garnet was mounted for microprobe study and the data are presented in Table 7 (grain 128). The variation in Cr_2O_3 content suggests this very tiny garnet grain is compositionally zoned. The microprobe data suggest that the garnet is an eclogitic chrome pyrope, perhaps comparable in composition to those of Group II eclogite (McCandless and Gurney 1986). Sage (1996) briefly reviews group 1 and 2 eclogites, and eclogites in general. Very tiny black inclusions were noted in two grains of ruby, but the samples were not suitable for microprobe study.

FUTURE STUDIES

Additional study of the Tandem-1 kimberlite is warranted to gain a better understanding of the early Jurassic mantle beneath the Abitibi greenstone belt. Additional study of the matrix mineralogy is required of all the kimberlite bodies located along the Lake Timiskaming Structural Zone to better define magmatic trends. The present study has concentrated on the kimberlite indicator minerals for use as a prospecting tool for diamond, most of which are likely xenocrystic rather than magmatic in origin. The matrix mineralogy contains the evolutionary history of the kimberlite magmas and their ultimate classification. Tentatively, the author would classify the Lake Timiskaming Structural Zone kimberlites as Type 1 (Skinner 1986; Mitchell 1991).

Additional study of the geochronology of the Seed kimberlite is warranted. The age of 153.7 ± 1.8 Ma on a pipe that displays reversed polarity is not consistent with results obtained on other reversely polarized pipes (this report; Sage 1996). Geochronology suggests that reversely polarized pipes are younger than those displaying normal polarity and that the polar reversal occurred at approximately 140 to 142 Ma. The Seed kimberlite age is inconsistent with this pattern and is within experimental error of age determinations obtained from a number of normally polarized pipes (this report; Sage 1996). The Seed age is approximately 11 million years older than any previously dated reversibly polarized kimberlite pipe.

Additional studies of mantle xenolith suites from a number of other kimberlite pipes are highly recommended to gain a better understanding of the mantle history. Studies of the mantle xenoliths from C-14 (Meyer et al. 1994) and the preliminary study of the Tandem-1 xenoliths presented here suggests the possibility that many differences may exist between xenolith suites obtained from closely spaced pipes. The significance of these differences requires an expanded database so that diamond exploration of the region can be expanded.

Future studies are dependent on access to sufficient sample material and mantle xenoliths. Exploration companies have commonly used all the core sections in their testing for diamonds. The lack of sample material hinders determination of the mantle conditions in the source region of the kimberlite pipe and limits interpretation of the results of these studies in terms of geology and diamond potential. Attrition milling will save an indicator mineral suite, however caustic dissolution can destroy all or part of an indicator mineral suite. Either method will destroy mantle xenoliths and these should be routinely collected for research purposes before the core is sent for crushing and testing. All types of mantle xenoliths should be collected and bias toward one type or composition avoided.

Additional study of the mineral inclusions in the ruby corundum from the Tandem-1 kimberlite is needed to better understand the environment in which it formed.

CONCLUSIONS

1. Ontario kimberlites occur in clusters along a northwest trend of approximately 325°.

2. The kimberlites tend to cluster and these clusters may display in detail an elongation distribution pattern oblique to the overall northwest-trending regional pattern across the northern part of the Province.

3. In detail, kimberlites occur at points where northwest-trending structures are crossed obliquely by faults, lineaments and major lithologic breaks.

4. North of Kirkland Lake, a series of kimberlite pipes and dikes are distributed in a general east-west pattern spatially related to the Destor–Porcupine deformation zone.

5. In the Kirkland Lake area, kimberlite pipes and dikes immediately north of the Larder Lake – Cadillac deformation zone, are less obviously related to the Larder Lake – Cadillac deformation zone than are the kimberlites and dikes farther north that are spatially associated with the Destor–Porcupine deformation zone. Kimberlites in the immediate region of Kirkland Lake appear to have more local fault control on their emplacement.

6. The two areas of kimberlite occurrence in the Kirkland Lake region, one east-west from Kirkland Lake and the other to the north and east of Matheson, are separated by a region within the central portion of the Abitibi greenstone belt where kimberlite has not yet been identified.

7. Sage (1996) suggested that movement across the Lake Timiskaming Structural Zone was east side up based on the fact that kimberlites east of the structural zone tend to be hypabyssal (deep level), whereas those to the west tended to be diatreme facies (high level). Subsequent work reported here casts some doubt on this model in that most kimberlites herein are hypabyssal and on the west side of the Lake Timiskaming Structural Zone.

8. Most kimberlite diamond drill cores in this region display carbonate-filled fractures with widely varying distribution and orientation. These fractures suggest that the kimberlites have been subjected to a mild brittle deformation and alteration since emplacement. This pattern has continued for cores examined for the supplementary report.

9. In general, both the volume and variety of indicator minerals appear to be much less in the reversely polarized kimberlite pipes than the normally polarized pipes. Indicator mineral studies for these pipes required much larger volumes of sample material than that required for the normally polarized pipes. The indicator mineral chemistry does not indicate a major difference in diamond potential or diamond preservation between normal and reversely polarized pipes. By analogy, perhaps the diamond content for the reversely polarized pipes will be lower since the indicator mineral content is relatively lower?

10. The announced diamond content for kimberlite 95-3 (95-2) may be significantly higher than that reported for other kimberlite pipes in the New Liskeard region. This pipe is located farther west of the Lake Timiskaming Structural Zone than other kimberlites in this region. Rifting is related to mantle plume activity that is mantle-root destructive, and mantle-root destructive processes are unfavourable for diamond preservation (Helmstaedt and Gurney 1995). Therefore, the diamond potential may be greater in kimberlites more distant from the rift and the possible mantle-root destructive processes that formed the rift.

11. No single structural element connects with all the known Ontario kimberlite occurrences.

12. New data presented here suggest that some kimberlites contain little if any ilmenite; i.e., McLean, OPAP and Tandem-1. Therefore, the suggestion of Sage (1996) identifying ilmenite as a good mineral to identify the presence of unexposed kimberlite is not universally correct. The expanded database suggests that kimberlites may be missed if prospecting were based solely on the presence of ilmenite that displayed chemistry favourable to a kimberlite source.

13. Favourable or highly favourable indicator mineral chemistry for the presence of diamond can be misleading if the pressure and temperature conditions indicate equilibrium or attempts at equilibrium outside the diamond stability field. Refer to Shee et al. (1989) for a discussion of the G-10–rich Zero kimberlite pipe in South Africa to gain some understanding of the fact that highly favourable indicator mineral compositions do not necessarily mean that diamond is preserved if mantle conditions are unfavourable.

RECOMMENDATIONS FOR THE PROSPECTOR

1. Many additional unidentified kimberlites likely occur along the Lake Timiskaming Structural Zone and locating them will likely depend on using proven exploration methods. This will consist of detailed investigation of surficial material for the identification of down-ice indicator mineral trails followed by detailed ground magnetic surveys for target definition. Diamond or reverse circulation drilling of targets for confirmation and sample material must follow. One has to use the complete indicator mineral suite in outlining indicator mineral trails since one or more indicators may be absent in any given kimberlite intrusion.

2. Preliminary assessment of the relative volume of indicator minerals in positive versus negatively polarized kimberlite pipes suggests that pipes with a positive polarity contain a higher volume and a more complete indicator mineral suite than the negatively polarized pipes. An extension of this observation would be that the anticipated diamond content might be higher in the positive than the negative polarized pipes. This suggestion needs confirmation by an expanded database.

3. Kimberlite pipes more distant from the actual rift structure may be better targets than those close to its margin. Mantle–plume-related rifting may be mantle-root destructive; therefore kimberlites close to the rift are likely to have relatively low diamond contents since the mantle-root destruction process inhibits diamond preservation. Kimberlites located distant from a rift are likely to be more favourably located for diamond preservation and thus a higher diamond content. This suggestion of increasing diamond content away from the immediate vicinity of the rift needs confirmation by an expanded database.

4. The mineral data suggest that the composition of the indicator mineral suite displays a slight improvement in the potential for diamond preservation from to north to south along the Lake Timiskaming Structural Zone (this report; Sage 1996). The Tandem-1 pipe may be an exception to this general trend of improving indicator mineral compositions. In general, this trend appears too weakly defined to form a basis for designing an exploration program for diamond-bearing kimberlite.

5. Kimberlites are multi-phased intrusions and this study, along with Sage (1996), indicates widely varying kimberlite indicator mineral contents and compositions within very closely spaced kimberlite intrusions. There is considerable contrast between closely spaced Tandem-1 versus Buzz 1, 2 and 3, in Guibord Township in age, freshness and indicator mineral composition. In the New Liskeard area positively and negatively polarized kimberlite pipes of different age, indicator mineral content and composition occur almost adjacent to each other. Testing of the Victor-1 pipe in the Attawapiskat area by Monopros Ltd. indicates considerable variation in diamond content between

various phases of the intrusion (Assessment Work Files, Timmins). A kimberlite cannot be considered adequately tested until all phases have been examined and no target can be discounted with respect to diamond potential even if essentially adjacent to a pipe that has been tested and proven uneconomic. Kimberlites defined by only one or two holes can not be considered adequately tested.

6. The development of models for kimberlite exploration and evaluation depend upon having access to sufficient sample material to undertake geochemical and mineralogical studies of economic relevance which can be added to the public database. This includes adequate supplies of both indicator minerals and mantle xenoliths. The exploration industry is encouraged to provide these materials for they can enhance exploration effectiveness. This recommendation also applies to all kimberlites regardless of magnetic polarity. This study, and Sage (1996), would indicate that while kimberlites have some features in common, few, if any, kimberlites can be described as being identical to one another even when closely spaced.

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Figure 1. Index map showing the location of kimberlites in Ontario (*from* Sage 1997).

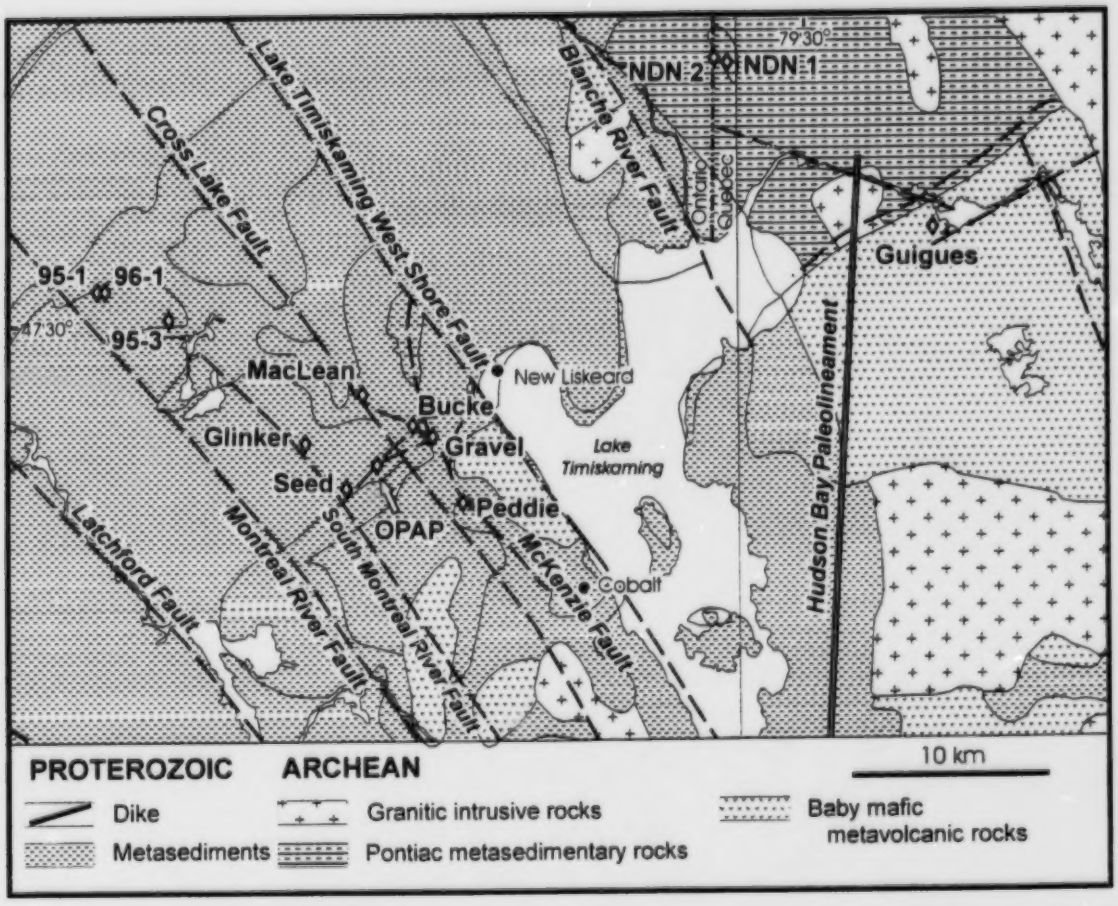


Figure 2. Location of kimberlites in the region of Cobalt and New Liskeard (*compiled from* Kutina and Fabbri 1972; Russell 1984; Thomson 1956, 1960). *Modified from* Sage (1999). Abbreviation: NDN, Notre-Dame-du-Nord.

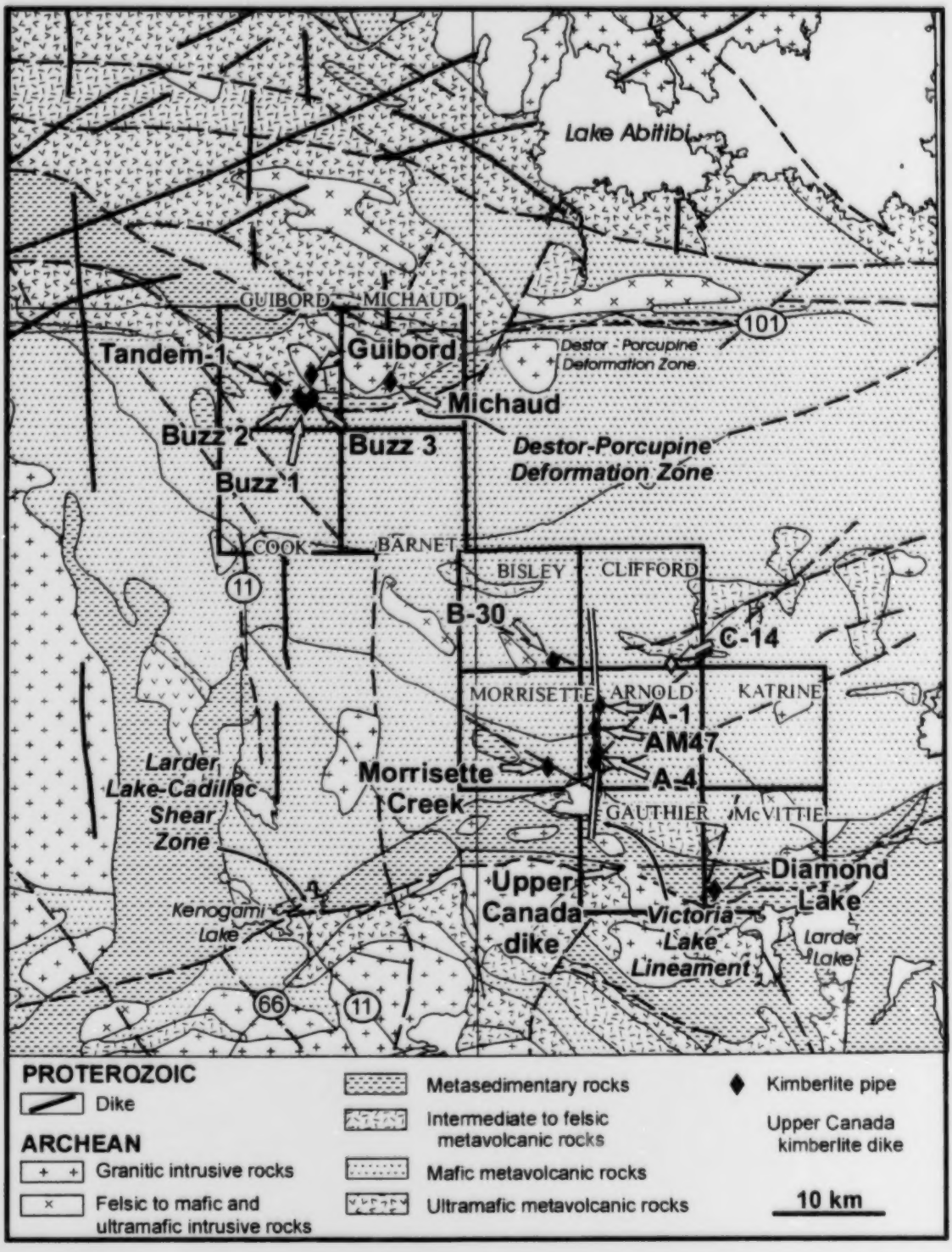


Figure 3. Sketch map showing the location of kimberlite pipes in the region of Kirkland Lake (*compiled from* Baker and Storrison 1979; Baker 1985; Hogg 1964; Jensen 1972, 1974, 1982, 1989; Prest 1951; Rupert and Lovell 1970; Satterley 1947; Thomson 1941; Thomson and Griffis 1941) *Modified from* Sage (1999)

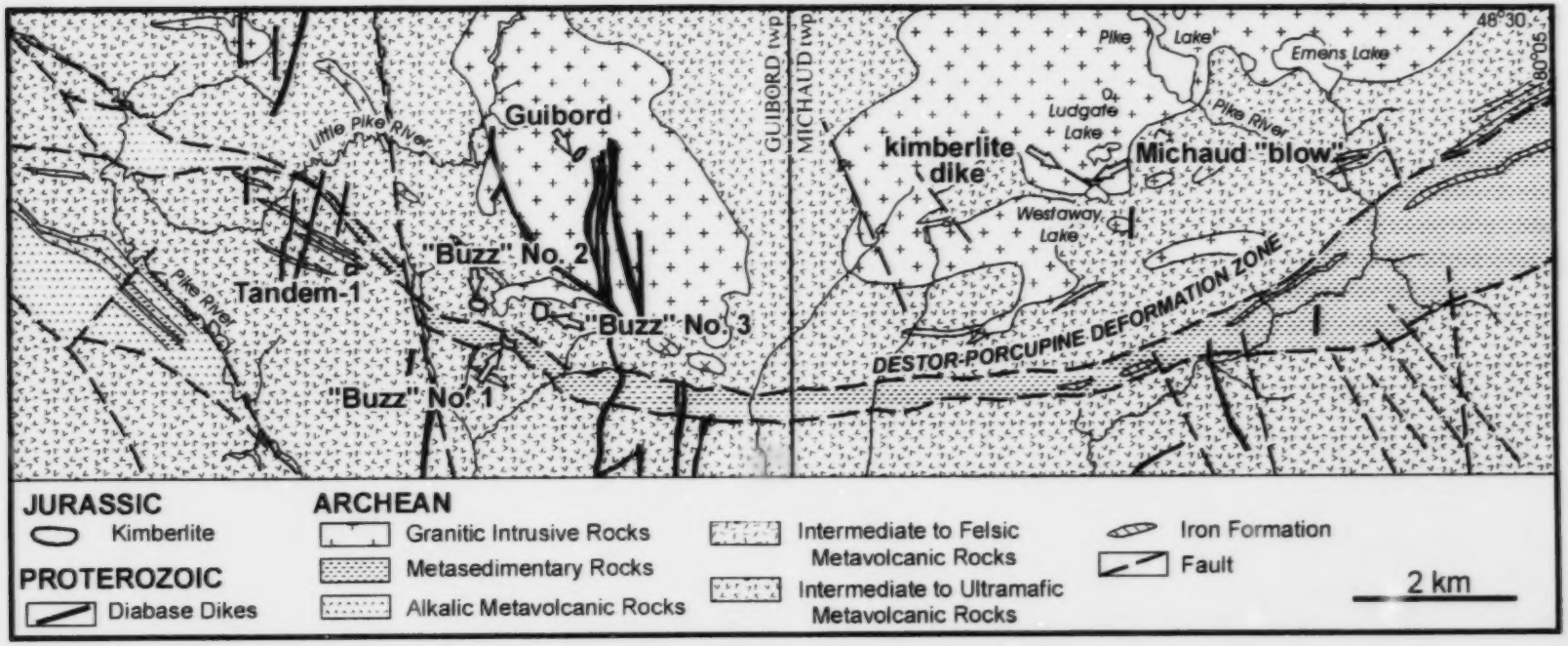


Figure 4. Kimberlites of Guibord and Michaud townships, Matheson, Ontario (*compiled from* Jensen 1989; Prest 1951; Satterly 1947). *Modified from* Sage (1999).

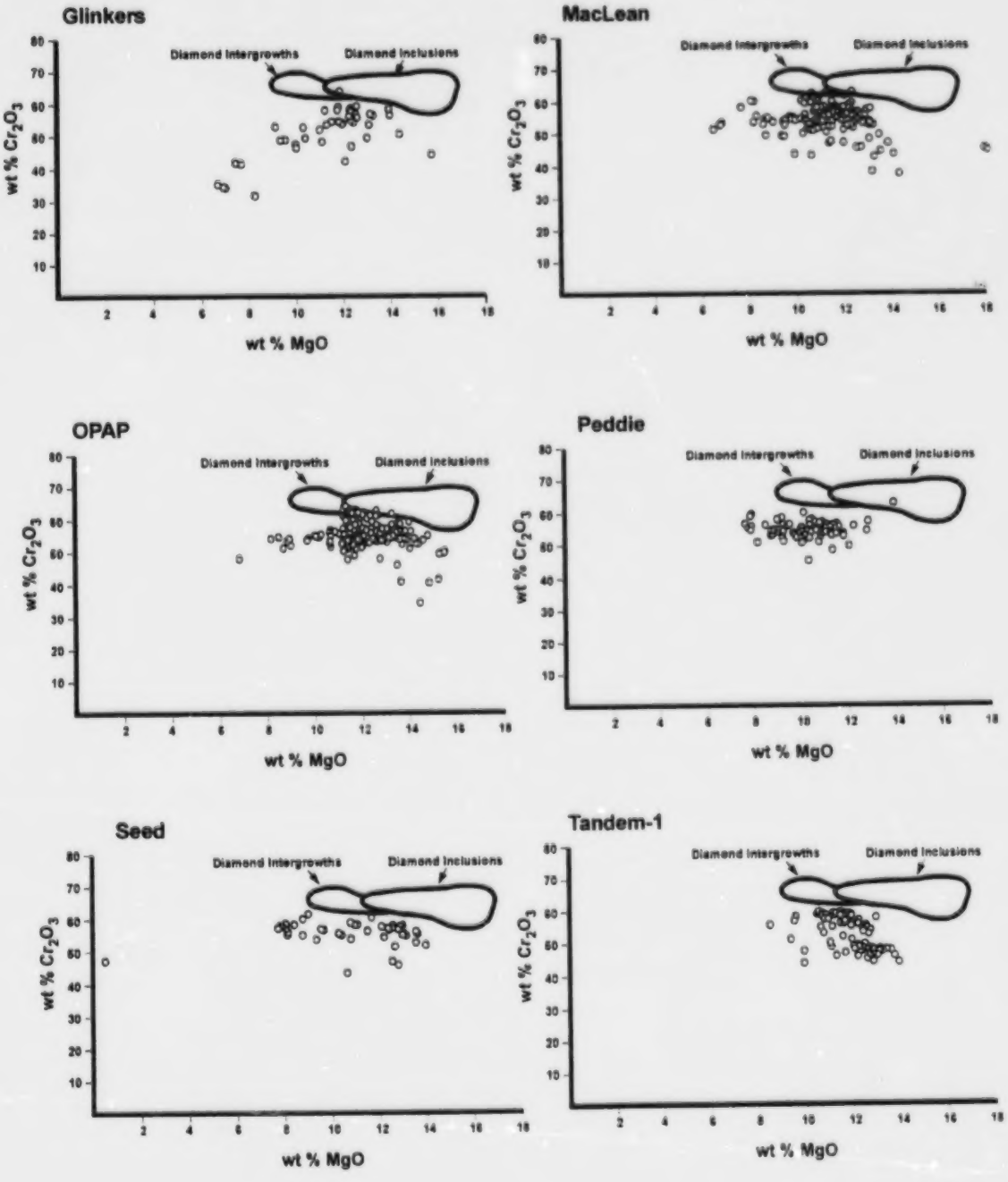


Figure 6a. Cr_2O_3 versus MgO plots for chromite from the Lake Timiskaming Structural Zone kimberlite pipes. Compositional fields *from* Fipke et al. (1995).

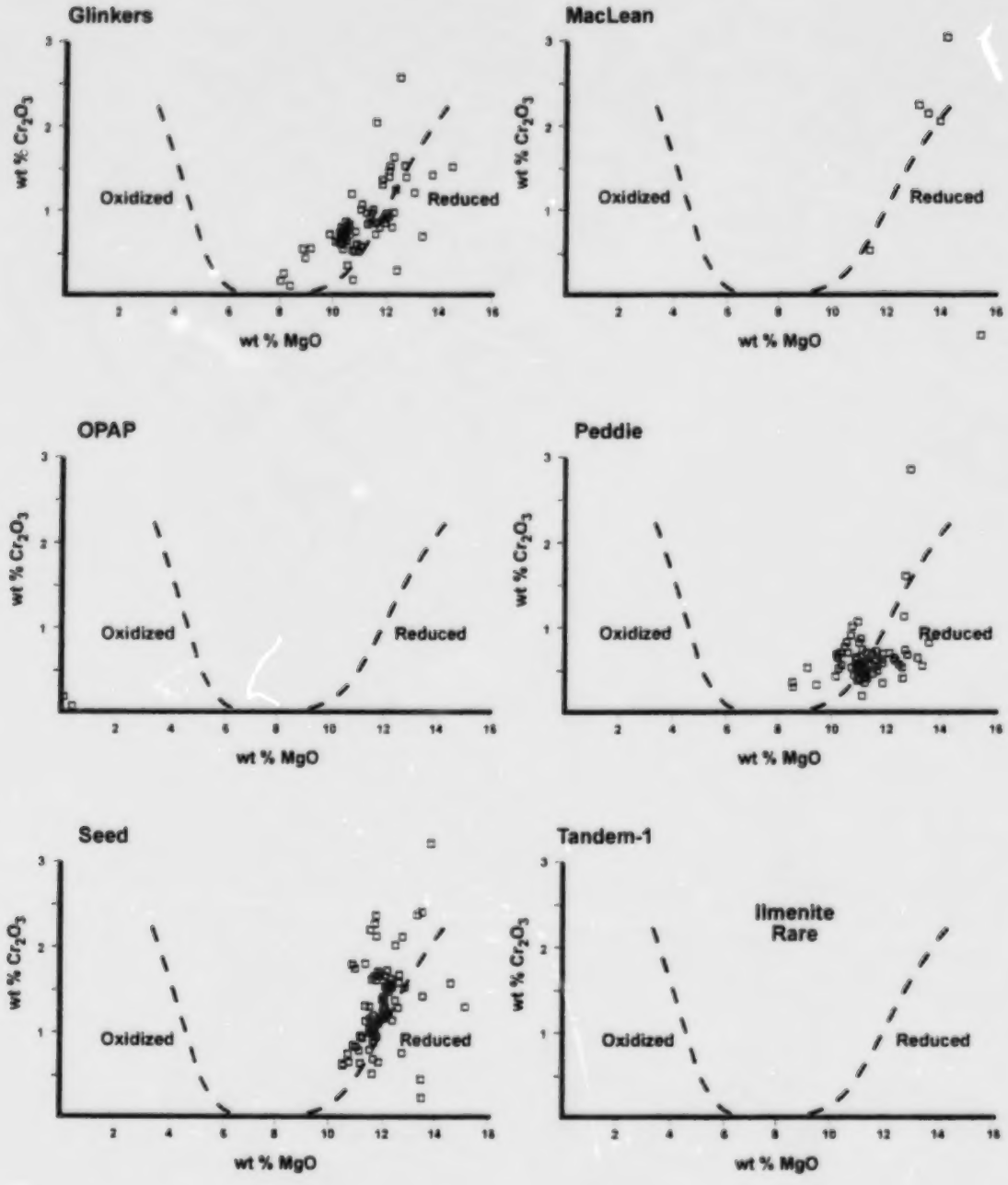


Figure 6b. Cr_2O_3 versus MgO plots for ilmenite from the Lake Timiskaming Structural Zone kimberlite pipes. Parabola curve *from* Haggerty (1975).

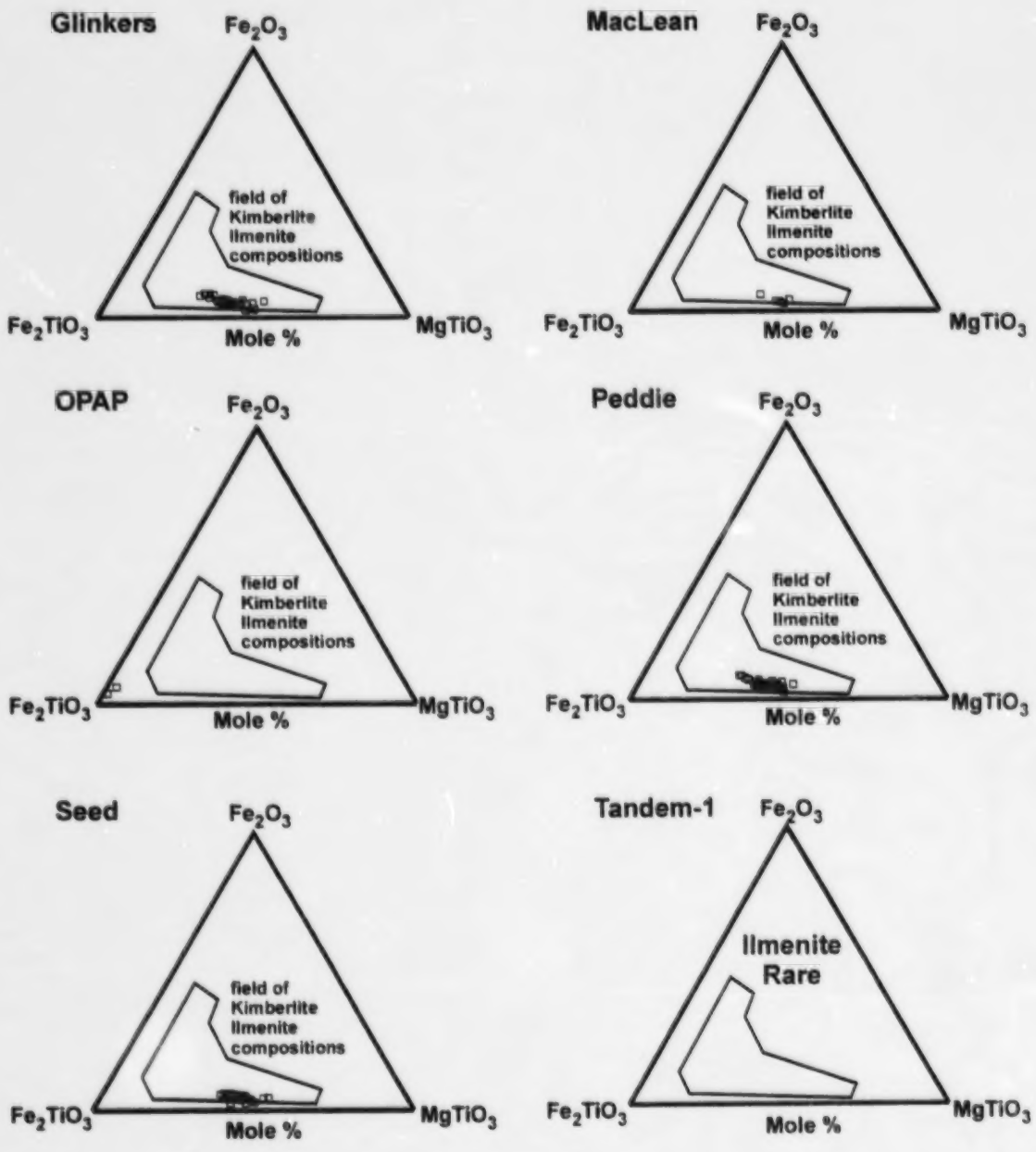


Figure 6c. Fe_2O_3 - $MgTiO_3$ - $FeTiO_3$ plots for ilmenite from the Lake Timiskaming Structural Zone kimberlite pipes. Compositional field *from* Haggerty and Tompkins (1983, 1984).

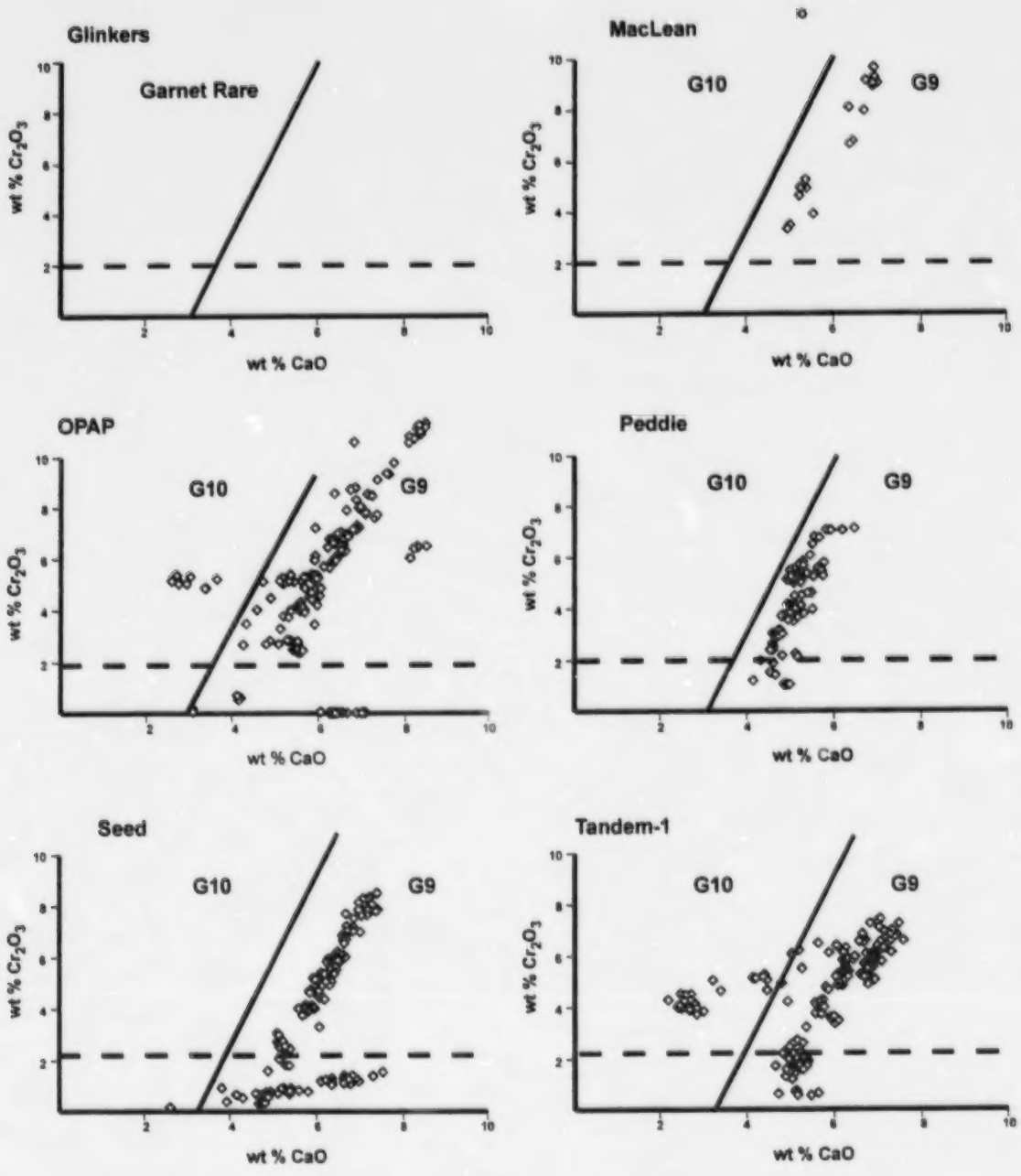


Figure 6d. Cr_2O_3 versus CaO plots for garnet from the Lake Timiskaming Structural Zone kimberlite pipes. Compositional fields *from* Gurney (1984, 1993) and Gurney and Moore (1991).

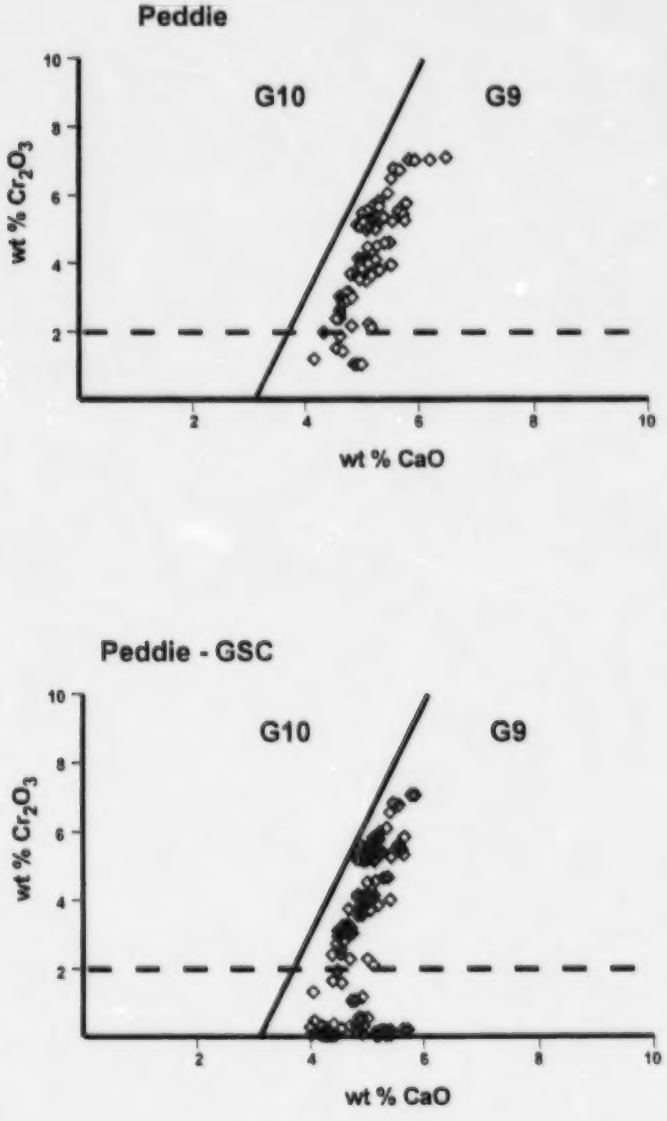
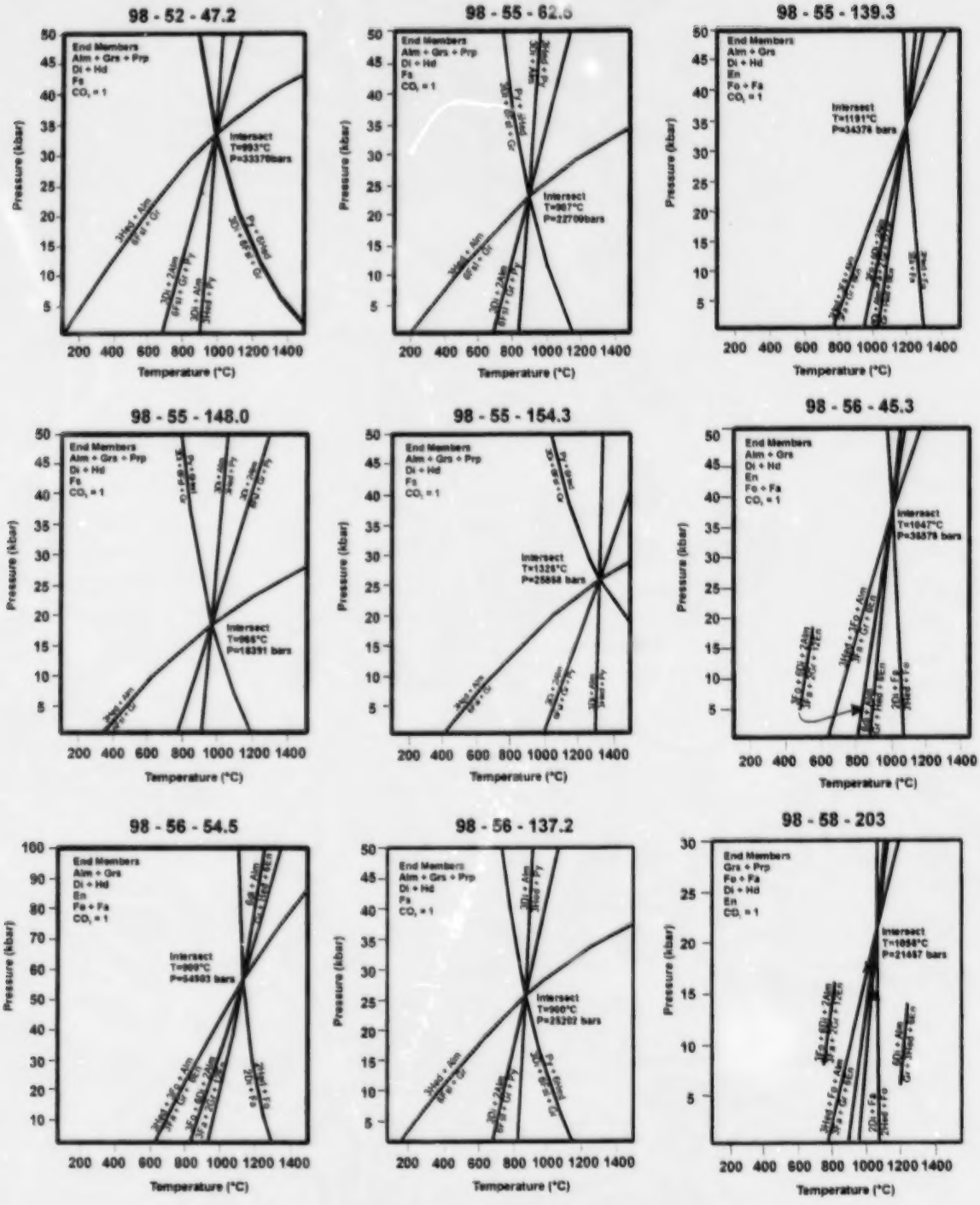


Figure 7. Comparing garnet geochemistry recovered from a small sample (Peddie) versus a large sample (Peddie-GSC). Compositional fields *from* Gurney (1984, 1993) and Gurney and Moore (1991).



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Di, Diopside; Hd, Hedenbergite; Fs, Ferrosilite; En, Orthoenstatite; Alm, Almandine; Grs, Grossularite; Prp, Pyrope; Fa, Fayalite; Fo, Fosterite

Figure 8. Pressure and temperature estimates using mineral pairs within mantle xenoliths.

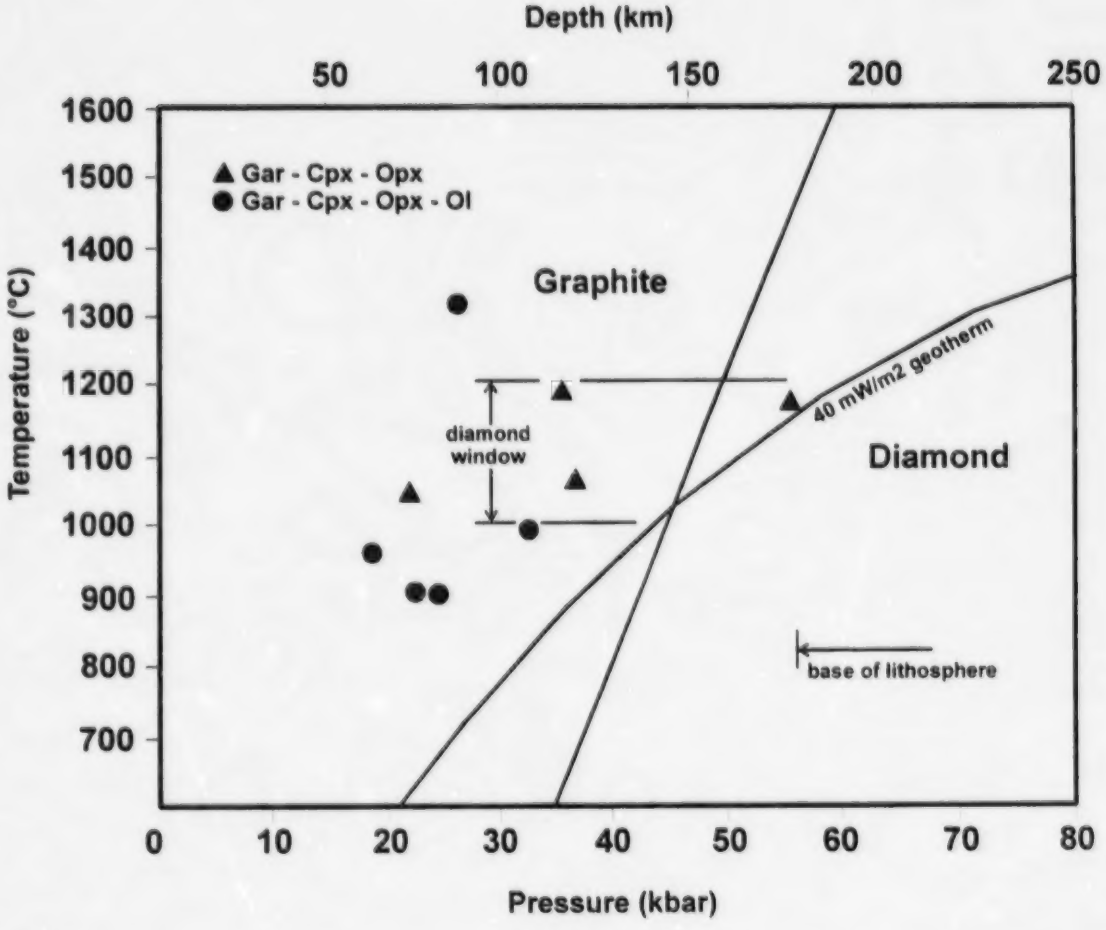


Figure 9. Pressure - temperature plot for mantle xenolith mineral assemblages from the Tandem-1 kimberlite along with the graphite - diamond inversion curve and an assumed geotherm of 40 mW/m^2. Figure *modified from* Meyer et al. (1994).

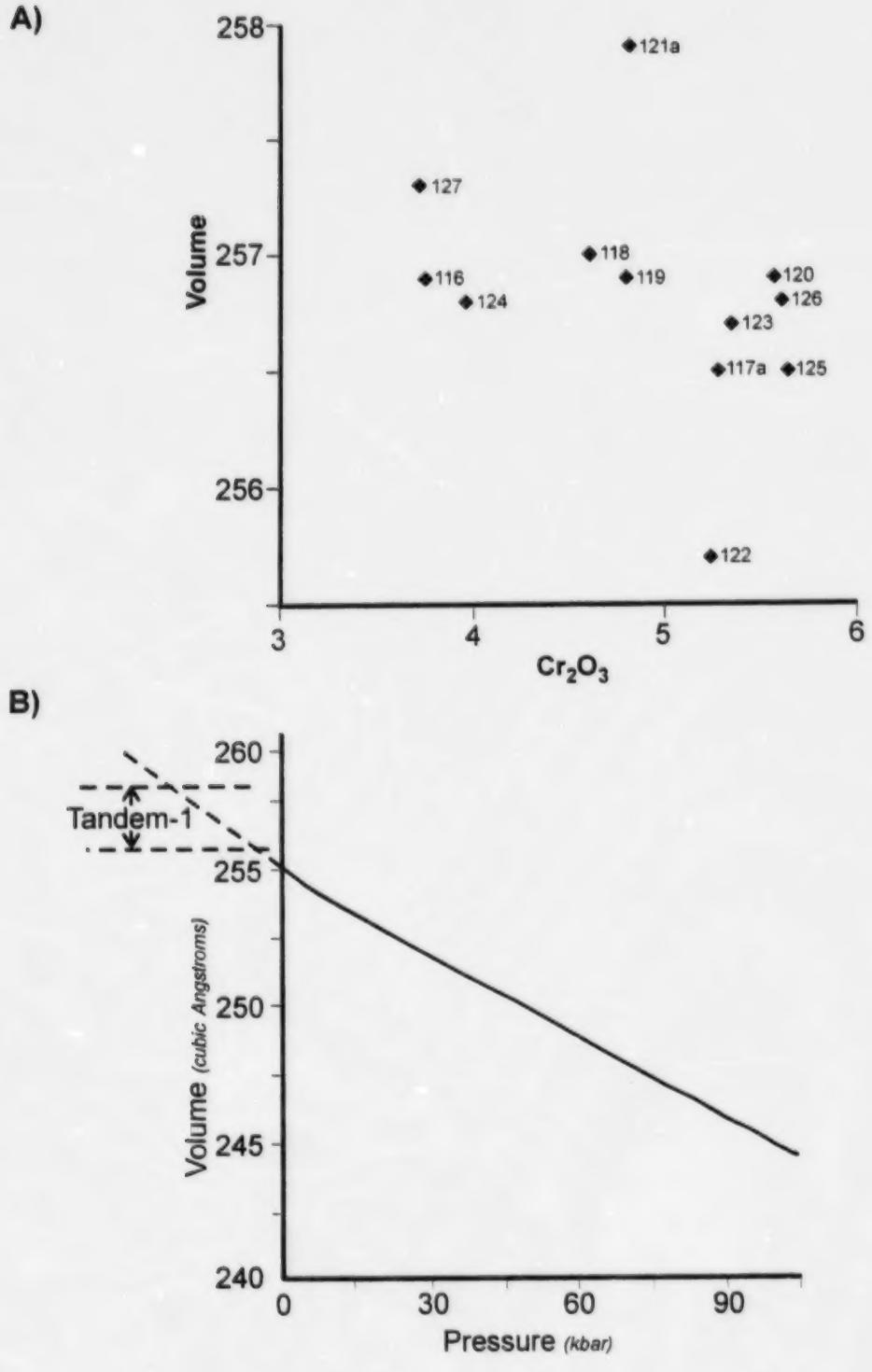


Figure 10. (A) Scatter diagram of Cr_2O_3 content versus cell volume. (B) Pressure cell volume relationships for ruby (*modified from* Finger and Hazen 1976).

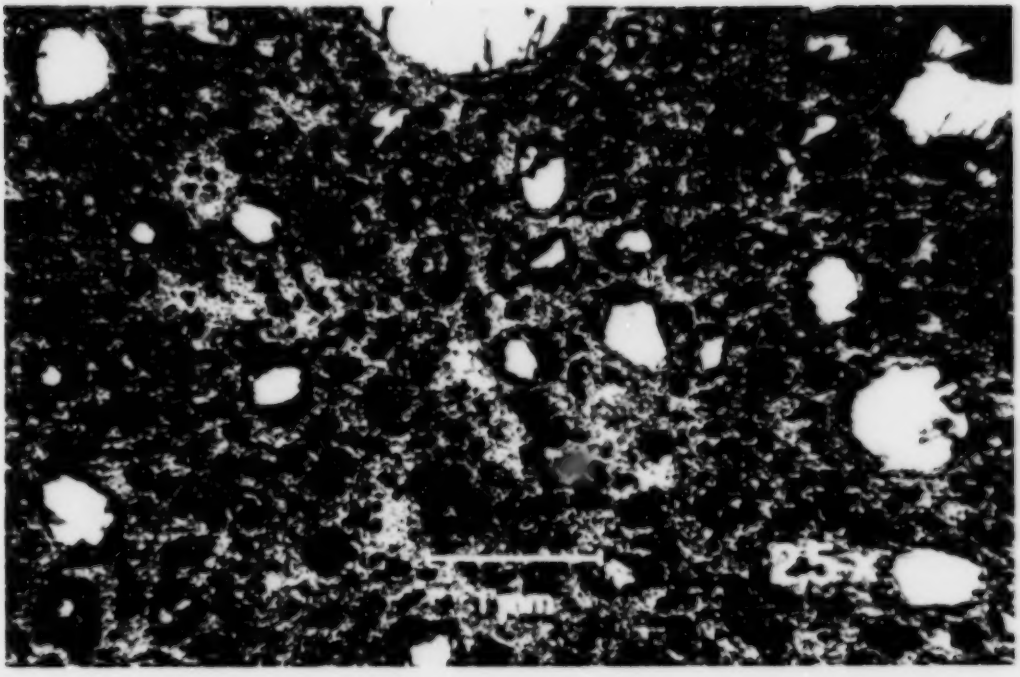


Photo 1. Photomicrograph of hypabyssal kimberlite from Glinkers pipe, sample 8-190, No. 2. Opaques, serpentinized olivine in a serpentine plus carbonate groundmass. Uncrossed nicols.

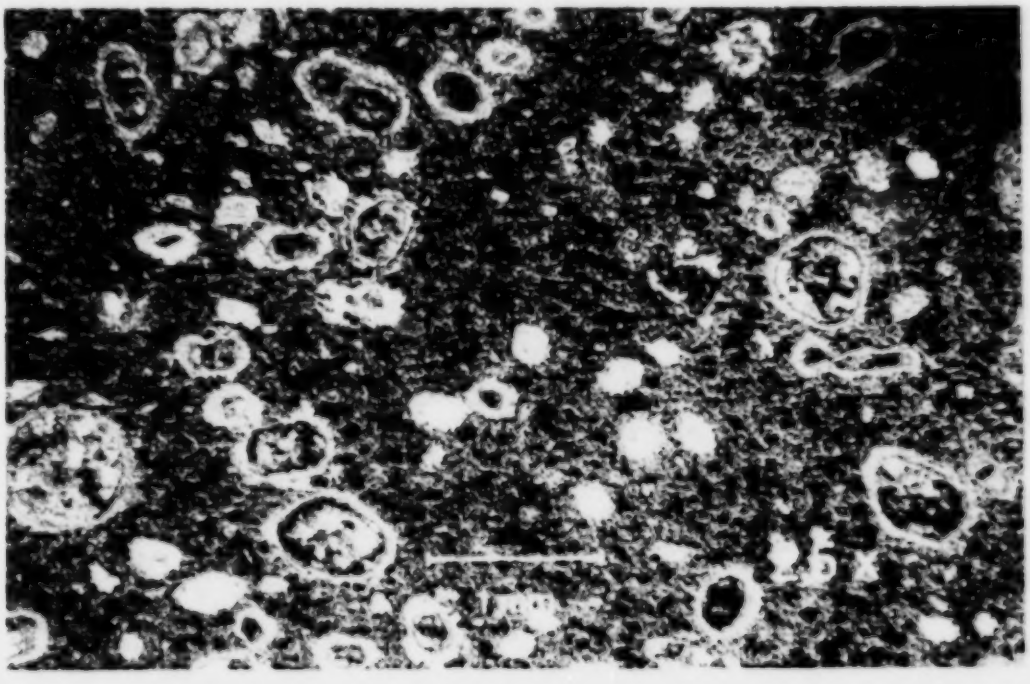


Photo 2. Photomicrograph of hypabyssal kimberlite from the McLean pipe, sample 11-9. Serpentinized olivine and disseminated opaques in serpentine plus carbonate groundmass. Uncrossed nicols.

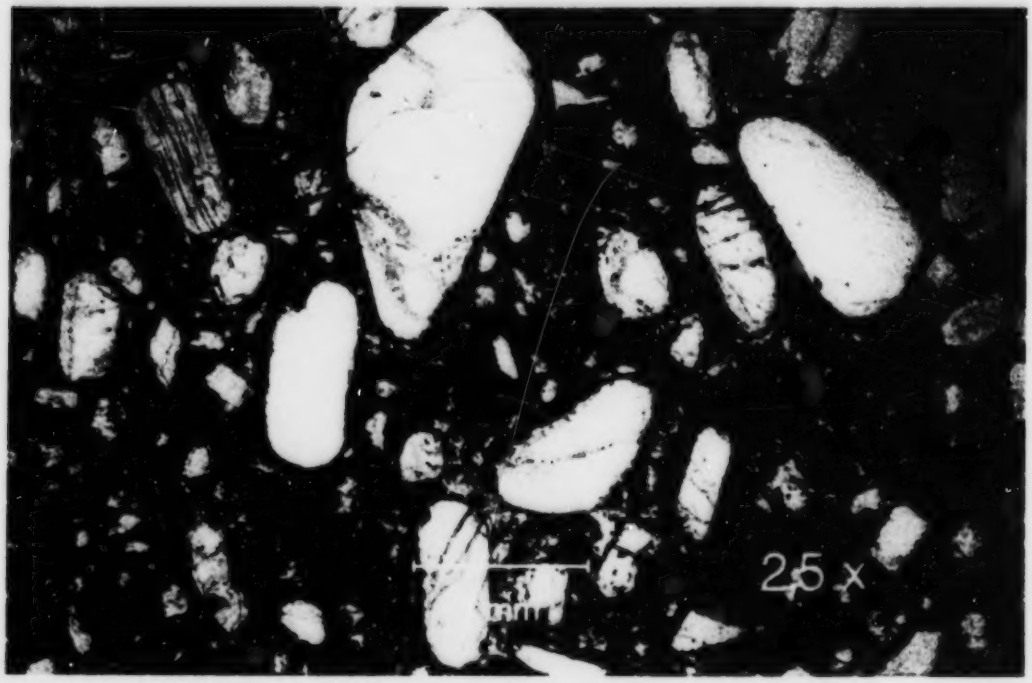
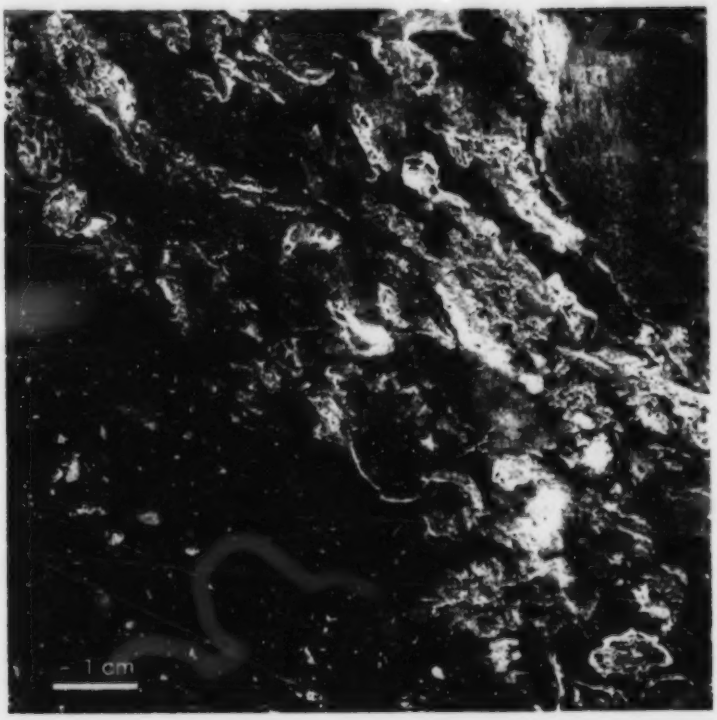


Photo 3. Photomicrograph of hypabyssal kimberlite from the Peddie pipe, sample BKF-1-61.3. Fresh to serpentinized olivine, phlogopite and opaques in a serpentine plus carbonate matrix. Uncrossed nicols.

Photo 4. Photomicrograph of hypabyssal kimberlite from the Seed pipe, sample 205-224, No. 1. Serpentinzed olivine cored pelletal structure in serpentine plus carbonate matrix. Uncrossed nicols.

a)



b)

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Photo 6. Photomicrograph of fresh hypabyssal kimberlite from the Tandem-1 pipe. Autolith and fresh olivine in a carbonate plus serpentine matrix. Uncrossed nicols.

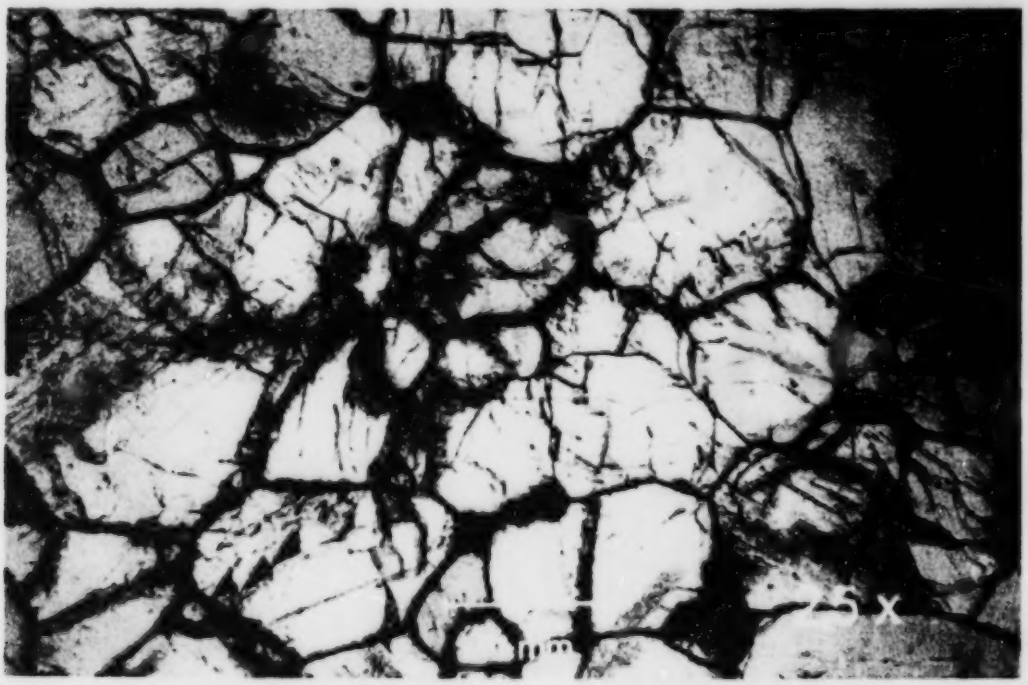

Photo 7. Photomicrograph of granoblastic texture in garnet lherzolite xenolith, sample 98-55-139.3. Orthopyroxene, clinopyroxene plus garnet. Uncrossed nicols.

Photo 8. Photomicrograph of granoblastic texture in garnet lherzolite xenolith displaying closely spaced, subparallel serpentinized fractures, sample 98-58-203.0. Uncrossed nicols.

Photo 9. Photomicrograph of granoblastic texture in garnet lherzolite xenolith with twining of the clinopyroxene, sample 98-56-45.3. Uncrossed nicols.

Table 1. Brief thin section descriptions of selected samples provided to the Ontario Geological Survey by Consolidated Pine Channel Gold Corporation, Monopros Limited, and Geological Survey of Canada. Samples and thin sections archived at the Royal Ontario Museum, Toronto, Ontario.

GLINKERS

Glinkers 2 (145-175 feet): Altered hypabyssal kimberlite
Olivine forms anhedral rounded grains replaced by chlorite, serpentine and opaque mineral. Phlogopite is present in very minor amounts as tabular subhedral to euhedral grains altering to chlorite. Opaque minerals are abundant and form anhedral to euhedral disseminated grains. Lithic clasts are angular to subangular in outline and mafic in composition. The very fine-grained matrix consists of chlorite, carbonate, serpentine and iron oxide. The specimen displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

Glinkers 8-1: Altered hypabyssal kimberlite
Anhedral rounded olivine grains have been replaced by serpentine and chlorite. Traces to minor phlogopite display some chlorite alteration. Abundant quantities of anhedral disseminated opaque minerals occur throughout the sample. Minor irregular-shaped lithic clasts are mafic in composition and altered to serpentine and chlorite. The matrix consists of very fine-grained carbonate, chlorite and serpentine. The sample displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

Glinkers 8-2: Altered hypabyssal kimberlite
Serpentine- and chlorite-replaced anhedral rounded grains of olivine are abundant. Minor phlogopite occurs as tabular subhedral to euhedral grains altering to chlorite. The rock matrix is a very fine-grained mixture of chlorite, carbonate and serpentine. Locally patches of slightly coarser grained carbonate will occur. Opaque minerals are anhedral to euhedral in outline and disseminated throughout the sample. The specimen displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

Glinkers 190-1: Altered hypabyssal kimberlite
Olivine forms a major component of the rock. The olivine is present as rounded anhedral grains replaced by serpentine and chlorite. Trace to minor amounts of phlogopite display subhedral to euhedral outlines and is being altered to chlorite. Minor lithic clasts are very fine grained and composed of carbonate, chlorite and serpentine. Opaque minerals are common and anhedral to euhedral in outline. Some of the opaque grains have birefringent cores suggesting that they formed after an earlier mineral as the product of rock alteration. The rock displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

Glinkers 190-2: Altered hypabyssal kimberlite
Olivine is anhedral in outline forming rounded grains. The olivine is fresh when compared to other Glinkers samples. Chlorite and serpentine are replacing the olivine. Lithic clasts are angular in shape and composed of carbonate and a mafic rock. An opaque mineral is relatively abundant forming anhedral to euhedral grains disseminated throughout the specimen. Carbonate, chlorite and serpentine form a very fine-grained matrix to the sample. Trace to minor amounts of phlogopite is present as tabular subhedral to euhedral grains. The sample is very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

MACLEAN

MacLean 1: Altered hypabyssal kimberlite
Abundant opaque minerals are anhedral to euhedral in form and disseminated throughout. Olivine is abundant as rounded grains undergoing replacement by serpentine and chlorite. Rounded autolithic fragments of kimberlite are not uncommon. Phlogopite is present in trace amounts. Very fine-grained carbonate, chlorite and serpentine form the rock matrix. The rock displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture. Rock traversed by a carbonate-filled fracture.

MacLean 2: Altered kimberlite breccia
Lithic clasts are a major rock component. The clasts are of very fine- to fine-grained carbonate and mafic rocks. Olivine is common as anhedral rounded to subangular grains altering to serpentine, chlorite and iron oxide. Opaque minerals are anhedral to subhedral in form and disseminated throughout. Some of the opaque grains may be iron oxide as a product of alteration. Very fine-grained carbonate, chlorite, serpentine and iron oxide comprise the matrix. The rock displays a very fine- to medium-grained inequigranular porphyritic seriate texture. The sample is reddish brown in color from iron staining.

MacLean–11.9 m: Altered hypabyssal kimberlite
Opaque minerals are abundant. The opaque minerals are anhedral to subhedral in outline and disseminated throughout the rock. Olivine is an abundant mineral that displays a rounded to subangular outline that is undergoing replacement by serpentine. Angular very fine-grained clasts of mafic rock. Very fine-grained carbonate, chlorite and serpentine compose the rock matrix.

MacLean–17.9 m: Altered kimberlite breccia
Lithic clasts are abundant. The clasts are angular to subangular in outline and consist of very fine-grained carbonate and mafic rocks. There are a few rounded autoliths within the matrix of the sample. Olivine is the dominant mineral and has been replaced by serpentine, chlorite and iron oxide. The olivine grains are anhedral and rounded in form. Opaque minerals occur in trace to minor amounts as anhedral disseminated grains. A very fine-grained matrix is composed of carbonate, chlorite, serpentine and iron oxide. Sample is pervasively stained with reddish brown iron oxide. The sample displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

MacLean–25.0 m: Altered hypabyssal kimberlite
A few angular to subangular mafic lithic clasts are present. Opaque minerals are abundant as anhedral to euhedral disseminated grains. Olivine is present as rounded anhedral grains undergoing replacement by chlorite and serpentine. Rounded, altered, pellet-like, autolith structures are common. The specimen matrix is composed of very fine-grained carbonate, chlorite and serpentine. The sample displays a very fine- to medium-grained inequigranular porphyritic seriate texture.

Table 1. continued.

MacLean–40.0 m: Altered hypabyssal kimberlite
Abundant opaque minerals are present as anhedral to euhedral grains. Rounded anhedral grains of olivine have been replaced by serpentine, chlorite and iron oxides. Very fine-grained chlorite, carbonate and serpentine form the rock matrix. The texture is very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

MacLean–51.5 m: Altered hypabyssal kimberlite
Several angular lithic clasts composed of carbonate and chlorite, probably after a mafic rock. Carbonate is present as irregular blebs of coarser grained material. The anhedral olivine forms rounded grains that have been replaced by serpentine. Disseminated opaque minerals display anhedral to euhedral outlines. The rock matrix is composed of a very fine-grained mixture of chlorite, serpentine and carbonate. The rock texture is fine- to medium-grained inequigranular porphyritic seriate allotriomoprhic.

PEDDIE

BKF-1–11.6 m: Hypabyssal kimberlite
Fresh olivine forms anhedral rounded to subrounded grains. Trace to minor amounts of phlogopite which may poikilitically enclose an opaque grain. Opaque minerals are common forming anhedral to euhedral disseminated grains. Several, small, rounded, altered mafic clasts. The rock matrix consists of very-fine grained carbonate, chlorite and serpentine. The texture is very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

BKF-1–14.9 m: Hypabyssal kimberlite
Fresh, anhedral rounded to subrounded olivine is a major component. Opaque minerals are anhedral to subhedral in form and disseminated throughout the rock. Minor phlogopite occurs as tabular subhedral to euhedral grains. Carbonate, serpentine and chlorite comprise the fine-grained matrix. The rock displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

BKF-1–38.6 m: Hypabyssal kimberlite
Olivine forms fresh anhedral rounded to subangular grains. Opaque minerals are disseminated throughout the rock as anhedral to euhedral grains. Minor phlogopite is subhedral to euhedral in outline as tabular grains, which may poikilitically enclose an opaque grain. Rarely, the mica will display bent (001) cleavage. Several very fine-grained, small, lithic clasts of carbonate and mafic composition. The rock matrix is composed of very fine-grained carbonate, chlorite and serpentine. A very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture is displayed by the sample.

BKF-1–61.3 m: Hypabyssal kimberlite
Fresh olivine forms rounded to subangular anhedral grains. Opaque minerals are common as anhedral to euhedral disseminated grains. Minor phlogopite is subhedral to euhedral in form and may poikilitically enclose an opaque grain. Several, small, rounded, very fine-grained lithic clasts of carbonate. A very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture is displayed by the sample.

Peddie-A: Hypabyssal kimberlite
The specimen contains an angular fine- to medium-grained clast of diabase or gabbro. Fresh olivine is the dominant mineral and occurs as anhedral rounded to subangular grains. Phlogopite is present in minor amounts as subhedral to euhedral tabular grains, which may poikilitically, enclose a small opaque grain. Carbonate, serpentine and chlorite form a very fine-grained matrix. The texture is very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

SEED

Seed 205-224–1: Altered hypabyssal kimberlite
Several small lithic clasts of very fine-grained carbonate. One turbid, altered mafic clast, which forms the nucleus for a pelletal structure. Very fine-grained mafic clasts and one layered clast were noted. Olivine is present as anhedral rounded grains replaced by serpentine. The altered olivine grains may form the core to poorly developed pelletal structures. The opaque minerals are anhedral and disseminated throughout the rock. Traces of perovksite are present. Carbonate, serpentine and chlorite form the very fine-grained rock matrix. Within the matrix, the carbonate is slightly coarser grained than the other minerals. The specimen displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture with poorly developed pelletal structures.

Seed 205-224–2: Altered hypabyssal kimberlite
Lithic clasts are angular to subangular in form and consist of very fine-grained carbonate and altered gabbro. Pelletal structures are moderately developed and are cored by small lithic clasts. The kimberlite enveloping the clast displays a tendency to be finer grained than most of the matrix kimberlite. Olivine forms anhedral rounded grains replaced by serpentine. Opaque minerals are present as anhedral disseminated grains. The matrix is composed of very fine-grained carbonate, chlorite and serpentine. The matrix carbonate is slightly coarser grained than the other matrix minerals. The sample displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

Seed 205-224–3: Altered hypabyssal kimberlite
Lithic clasts of very fine-grained carbonate and mafic rock may core poorly developed pelletal structures. Olivine is anhedral in form and replaced by serpentine and chlorite. Opaque minerals are disseminated throughout the specimen as anhedral to subhedral grains. The rock matrix is composed of very fine-grained carbonate, chlorite and serpentine. Traces of perovskite may be present. The rock displays a very fine- to medium-grained inequigranular porphyritic seriate texture.

Seed 205-224–4: Altered hypabyssal kimberlite
Rounded, angular to subangular lithic clasts of very fine-grained carbonate, mafic rock and banded siltstone(?). The dominant mineral is olivine which forms rounded anhedral grains replaced by serpentine and chlorite. Disseminated anhedral to subhedral opaque minerals occur throughout the sample. Trace amounts of perovksite and mica were observed. The specimen has a very fine-grained carbonate, chlorite and serpentine matrix. Carbonate in the matrix is slightly coarser grained than the other matrix minerals. The texture is very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

Table 1. continued.

Seed 205-224-5: Altered hypabyssal kimberlite
The specimen contains one large very fine-grained carbonate clast which has fine-grained kimberlite wrapped around the margins. Anhedral olivine forms rounded grains replaced by serpentine. Opaque minerals are disseminated throughout the rock as anhedral to subhedral grains. Traces of perovskite and one small possible autolith were observed. The sample has a very fine-grained carbonate, serpentine and chlorite matrix. The carbonate in the matrix is slightly coarser grained than the other matrix minerals. The small clasts form cores to a weakly developed pelletal structure. The rock displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture with poorly developed pelletal structures.

TANDEM-1

98-04-86.0 - 92.0 m: Hypabyssal kimberlite
Olivine is abundant as rounded anhedral to subhedral grains undergoing replacement by serpentine. Minor phlogopite is present as anhedral to subhedral tabular grains. Lithic clasts are angular in outline and of mafic composition. A trace of opaque mineral is disseminated throughout the sample. The specimen displays a very fine-grained carbonate, serpentine and chlorite(?) matrix. The texture is very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

98-04-137.0 - 143.2 m: Hypabyssal kimberlite
Anhedral to subhedral rounded grains of olivine is the dominant mineral. There are traces of an opaque mineral and some coarse-grained carbonate are present as a minor component. Lithic fragments are angular in outline and mafic in composition. The rock matrix is very fine grained and composed of a mixture of carbonate, serpentine and chlorite. A very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture is displayed by the sample.

98-05-63.0 - 69.0 m: Hypabyssal kimberlite
Olivine is the dominant mineral and occurs as anhedral to subhedral grains undergoing serpentinization. Angular lithic fragments are present and of a mafic composition. Well-rounded autoliths are also present and of a relatively small size. Trace amounts of phlogopite and opaque mineral were noted. The matrix consists of a very fine-grained mixture of carbonate, serpentine and chlorite(?). The specimen displays a very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

98-05-117.5 -124.0 m: Hypabyssal kimberlite
Olivine is present as anhedral to subhedral rounded grains undergoing serpentinization. Trace amounts of orthopyroxene, opaque mineral and phlogopite were observed. Angular lithic fragments of limestone and mafic rock are present throughout the sample. The rock matrix consists of a very fine-grained mixture of serpentine, carbonate and chlorite(?). A very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture is displayed by the specimen.

98-06-86.0 - 92.0 m: Hypabyssal kimberlite
Angular lithic fragments of limestone and mafic rock are present and form up to 20% of the specimen. Olivine is the dominant mineral and occurs as anhedral to subhedral rounded grains undergoing serpentinization. A very fine-grained matrix of serpentine, carbonate and possibly chlorite is displayed by the sample. The rock texture is very fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

98-06-110.0 - 114.8 m: Hypabyssal kimberlite
One small rounded garnet lherzolite xenolith present. Lithic fragments are angular to subangular in form. The largest clast displays altered, broken feldspar crystals. Clasts consist of mafic rock and limestone. Olivine is present as anhedral rounded to subrounded grains undergoing replacement by serpentine. Trace of opaque mineral present. The matrix consists of very fine-grained serpentine, carbonate and chlorite. The rock texture is fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

98-09-56.0 - 62.0 m: Hypabyssal kimberlite
Angular lithic clasts of mafic rock are present. Orthopyroxene altering to serpentine is present in very minor amounts and is undergoing alteration to serpentine. Trace of opaque mineral is present. The olivine occurs as anhedral rounded to subrounded grains undergoing replacement by serpentine. A very fine-grained matrix is composed of serpentine, carbonate and chlorite. The specimen displays a fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

98-09-128.0 - 134.0 m: Hypabyssal kimberlite
Lithic fragments of angular to subangular outline are present and of limestone and mafic composition. Trace of opaque mineral is present. The olivine occurs as anhedral rounded to subrounded grains undergoing replacement by serpentine. Very fine-grained serpentine, carbonate and chlorite comprise the matrix. The sample texture is fine- to coarse-grained inequigranular porphyritic seriate allotriomorphic.

98-10-77.0 83.0 m: Hypabyssal kimberlite
Angular to subangular lithic fragments of limestone and mafic rock form up to 20% of the sample. A trace of opaque mineral is present throughout the specimen. Olivine occurs as anhedral rounded grains undergoing replacement by serpentine and carbonate. A trace of phlogpite was observed. The matrix is composed of very fine-grained serpentine, carbonate and chlorite. This specimen from hole 10 is the most altered kimberlite of the Tandem-1 suite. The rock texture is fine- to medium-grained inequigranular porphyritic seriate allotriomorphic.

98-10-107.0 - 113.0 m: Hypabyssal kimberlite
Lithic fragments compose up to 20% of the specimen and consist of limestone and mafic rock A trace of opaque mineral and orthopyroxene is present. Anhedral rounded grains of olivine undergoing replacement by serpentine and carbonate is the dominant rock-forming mineral. A very fine-grained matrix of serpentine, carbonate and chlorite encloses the olivine and rock fragments. The specimen displays a fine- to medium-grained inequigranular porphyritic seriate allotriomorphic texture.

Table 2. Brief thin section descriptions of mantle xenoliths recovered by Tandem Resources Limited in 1998 from the Tandem-1 kimberlite pipe, Guibord Township. Samples and thin sections archived at the Royal Ontario Museum, Toronto, Ontario.

98-52-47.2 m: Garnet websterite
Garnet is present as anhedral grains interlocking with orthopyroxene and olivine. The orthopyroxene forms anhedral interlocking grains with the olivine and garnet. Clinopyroxene is present as anhedral irregular grains interlocking with the pyroxene and garnet. Traces of opaque mineral in between the much larger pyroxene, garnet and olivine grains. Chlorite and serpentine alteration occurs along grain boundaries and fractures within the specimen. Within this specimen, the clinopyroxene, garnet and orthopyroxene have similar grain size, but the opaque minerals are much smaller. The rock texture is fine- to coarse-grained inequigranular hiatal allotriomorphic with curved grain boundaries.

98-55-62.5 m: Garnet websterite
Anhderal orthopyroxene forms interlocking grains with the olivine and commonly displays twin planes. The clinopyroxene is anhedral and forms interlocking grains with the pyroxene. Garnet is present as anhedral grains interlocking with the orthopyroxene and clinopyroxene. Chlorite and serpentine occur as alteration products along grain boundaries and fractures. The garnet, orthopyroxene and clinopyroxene display similar grain size in this sample. The rock texture is coarse-grained equigranular allotriomorphic with curved grain boundaries.

98-55-139.3 m: Garnet lherzolite
Garnet is anhedral in outline and lies between larger pyroxene and olivine grains. Traces of fine-grained opaque minerals between the larger grains. Olivine is present as anhedral grains interlocking with the orthopyroxene. Orthopyroxene is anhedral and interlocking with the olivine. The orthopyroxene grains may display twin planes. Clinopyroxene forms interlocking grains with the olivine and orthopyroxene. Serpentine and chlorite alteration occurs along grain boundaries and fractures in the rock. The texture is fine- to coarse-grained inequigranular hiatal allotriomorphic with curved grain boundaries.

98-55-148.0 m: Garnet websterite
The garnet is anhedral and forms interlocking grains between the larger orthopyroxene and clinopyroxene. Anhedral orthopyroxene may display twining and forms interlocking grains with anhedral clinopyroxene. The clinopyroxene and orthopyroxene are present as anhedral grains of similar size. Traces of very fine-grained opaque minerals between the much larger mineral grains. Serpentine and chlorite alteration is present along grain boundaries and fractures within the rock. The specimen displays a fine- to coarse-grained inequigranular hiatal allotriomorphic texture with curved grain boundaries. There is weakly developed set of subparallel fractures traversing the rock.

98-55-154.3 m: Garnet-bearing websterite
Minor garnet forms small anhedral grains in between the larger orthopyroxene and clinopyroxene grains. Orthopyroxene is anhedral in shape and displays twin planes. The clinopyroxene is anhedral interlocking with the pyroxene. Microprobe analysis of one grain with prominent tin lamella indicates it is a twinned clinopyroxene. Orthopyroxene is more abundant than the clinopyroxene. Opaque mineral grains, much smaller than the rock-forming minerals, occur between the larger pyroxene grains. Serpentine and chlorite occur as alteration products along the mineral grain boundaries and fractures traversing the rock. The sample displays a fine- to coarse-grained inequigranular hiatal allotriomorphic texture with curved grain boundaries.

98-56-45.3 m: Garnet lherzolite
Garnet is anhedral in form and is present as grains interlocking with the pyroxene and olivine. Olivine forms interlocking grains with orthopyroxene and clinopyroxene. Both clinopyroxene and orthopyroxene form anhedral interlocking grains with the olivine and some grains may display twin planes. Along the grain boundaries and fractures, serpentine and chlorite(?) are common alteration products. The rock texture is medium- to coarse-grained inequigranular seriate allotriomorphic with curved grain boundaries.

98-56-54.5 m: Garnet lherzolite
Garnet is anhedral in outline and one grain of garnet was observed to be poikilitic in pyroxene and one in olivine. Orthopyroxene, clinopyroxene and olivine form anhedral interlocking grains of similar size. Traces of opaque mineral may be found between the larger pyroxene, olivine and garnet grains. Fractures and grain margins display chlorite and serpentine alteration. The texture is fine- to coarse-grained inequigranular hiatal allotriomorphic with curved grain boundaries. This specimen is the most altered of the xenolith suite.

98-56-137.2 m: Garnet websterite
Anhedral garnet occurs between larger grains of pyroxene and olivine. Orthopyroxene is present as interlocking grains with clinopyroxene, and olivine likewise forms anhedral interlocking grains with the two pyroxenes. Traces of opaque mineral may be found between the larger mineral grains. Serpentine and chlorite alteration occurs along grain boundaries and fractures. The specimen displays a fine- to coarse-grained inequigranular hiatal allotriomorphic texture with curved grain boundaries.

98-58-145.0 m: Lherzolite
Anhedral olivine, clinopyroxene and orthopyroxene form an interlocking mosaic of anhedral grains. Traces of opaque mineral may be present between the larger grains of the rock forming minerals. Along the grain margins and fractures within the specimen, chlorite and serpentine alteration is taking place. Fractures within the rock are crudely subparallel and the rock may have been subjected to weak deformation. The texture is fine- to coarse-grained inequigranular hiatal allotriomorphic with curved grain boundaries.

98-58-203.0 m: Garnet lherzolite
Garnet is present as relatively small rounded anhedral grains. In this sample, garnet forms much small grains that are concentrated between the olivine and pyroxene grains. Orthopyroxene and clinopyroxene are anhedral in shape and they rarely may enclose an olivine grain. The olivine is present as anhedral grains interlocking with the two pyroxenes. Traces of small opaque grains may occur between the larger rock-forming minerals. The fractures and grain boundaries display alteration to serpentine and chlorite. The specimen displays a fine- to coarse-grained inequigranular hiatal allotriomorphic texture with curved grain boundaries.

Table 2. continued.

98-58-207.8 m: Garnet harzburgite
Interlocking with the orthopyroxene and olivine is anhedral garnet. The orthopyroxene and olivine are the dominant minerals forming an interlocking mosaic of anhedral grains. The pyroxene may display the development of twin planes. Traces of small opaque mineral grains may occur between the larger rock-forming mineral grains. Along the grain edges and along fractures, chlorite and serpentine alteration of the primary minerals is taking place. The rock displays a fine- to coarse-grained inequigranular hiatal allotriomorphic texture with curved grain boundaries.

Summary
Within any given sample, the pyroxenes and olivines are of similar grain size. The garnet may be equivalent in grain size to the pyroxenes and olivine, but, most commonly, it is of a size much smaller than either these minerals. There is only limited variation in the size range of each mineral within each specimen imparting a hiatal texture to the specimens. The trace to minor amounts of opaque mineral are consistently much finer grained than the other rock forming minerals. The texture can be described simply as granoblastic with two specimens suggesting the possibility of being subjected to mild deformation.

Table 3. Microprobe analysis of mineral phases in mantle xenoliths, Tandem-1 kimberlite.

Location											
Mineral / Sample No.											
98-52-47.2 metres											
Garnet	**SiO2**	**TiO2**	**Al2O3**	**Cr2O3**	**MgO**	**CaO**	**MnO**	**FeO**	**Na2O**	**K2O**	**Total**
47.2-gar-1c	41.23	0.13	22.40	0.43	16.92	4.53	0.42	14.24	0.03	0.00	100.33
47.2-gar-1r	40.99	0.15	22.34	0.50	16.90	4.41	0.44	14.13	0.04	0.00	99.90
47.2-gar-2c	41.11	0.13	22.63	0.54	17.14	4.53	0.41	14.17	0.04	0.01	100.71
47.2-gar-2r	41.28	0.12	22.60	0.54	17.36	4.38	0.45	13.38	0.05	0.00	100.17
Pyroxene	**SiO2**	**TiO2**	**Al2O3**	**Cr2O3**	**MgO**	**CaO**	**MnO**	**FeO**	**Na2O**	**K2O**	**Total**
47.2-cpx-1c	54.63	0.12	1.82	0.17	16.33	21.11	0.08	3.95	1.44	0.01	99.67
47.2-cpx-1r	54.63	0.12	1.75	0.23	16.34	21.16	0.04	4.08	1.35	0.00	99.69
47.2-cpx-2c	54.89	0.12	1.99	0.21	16.30	21.14	0.07	3.97	1.46	0.01	100.16
47.2-cpx-2r	54.96	0.11	1.82	0.18	16.36	21.29	0.05	4.04	1.37	0.00	100.17
47.2-cpx-3c	54.77	0.16	1.94	0.19	16.45	21.15	0.11	3.90	1.45	0.01	100.13
47.2-cpx-3r	54.82	0.13	1.72	0.27	16.40	21.26	0.08	4.04	1.42	0.02	100.16
47.2-opx-1c	56.66	0.05	0.37	0.03	32.62	0.41	0.15	9.88	0.07	0.01	100.24
47.2-opx-1r	56.68	0.06	0.28	0.05	32.87	0.38	0.18	9.36	0.05	0.00	99.90
47.2-opx-2c	56.78	0.00	0.31	0.06	32.79	0.39	0.14	9.52	0.07	0.00	100.06
47.2-opx-2r	56.41	0.06	0.31	0.03	32.62	0.39	0.14	9.35	0.14	0.01	99.46
47.2-opx-3c	56.72	0.01	0.26	0.01	32.93	0.34	0.11	9.54	0.09	0.01	100.03
47.2-opx-3r	57.16	0.02	0.39	0.04	33.15	0.36	0.12	9.36	0.09	0.00	100.70
98-55-62.5 metres											
Garnet	**SiO2**	**TiO2**	**Al2O3**	**Cr2O3**	**MgO**	**CaO**	**MnO**	**FeO**	**Na2O**	**K2O**	**Total**
62.5-gar-1c	41.02	0.13	22.55	0.48	16.77	4.45	0.45	14.68	0.04	0.02	100.59
62.5-gar-1r	41.14	0.10	22.86	0.46	16.85	4.42	0.45	14.62	0.03	0.00	100.93
62.5-gar-2c	41.20	0.11	22.49	0.55	16.60	4.44	0.46	14.52	0.02	0.00	100.39
62.5-gar-2r	40.87	0.10	22.35	0.46	16.48	4.44	0.42	14.48	0.01	0.01	99.62
62.5-gar-3c	41.12	0.13	22.56	0.52	16.67	4.48	0.43	14.72	0.03	0.01	100.67
62.5-gar-3r	41.76	0.09	23.04	0.41	16.98	4.37	0.46	14.62	0.02	0.00	101.74
Pyroxene	**SiO2**	**TiO2**	**Al2O3**	**Cr2O3**	**MgO**	**CaO**	**MnO**	**FeO**	**Na2O**	**K2O**	**Total**
62.5-cpx-1c	55.11	0.08	1.98	0.21	16.62	21.35	0.08	3.61	1.19	0.04	100.28
62.5-cpx-1r	55.09	0.08	1.91	0.20	16.59	21.31	0.10	3.73	1.15	0.04	100.21
62.5-cpx-2c	54.80	0.11	2.01	0.20	16.50	21.36	0.07	3.80	1.20	0.04	100.09
62.5-cpx-2r	54.84	0.10	1.85	0.22	16.49	21.24	0.08	3.79	1.17	0.03	99.82
62.5-opx-1c	56.50	0.00	0.20	0.01	32.12	0.42	0.14	10.36	0.06	0.00	99.80
62.5-opx-1r	56.37	0.05	0.30	0.00	32.00	0.42	0.16	10.36	0.08	0.01	99.74
62.5-opx-2c	56.57	0.07	0.24	0.03	31.90	0.35	0.15	10.22	0.04	0.00	99.57
62.5-opx-2r	56.41	0.00	0.23	0.10	31.97	0.43	0.13	10.25	0.08	0.01	99.61
62.5-opx-3c	57.01	0.05	0.37	0.04	32.17	0.47	0.15	10.25	0.06	0.00	100.58
62.5-opx-3r	56.49	0.01	0.31	0.01	32.04	0.38	0.12	10.26	0.09	0.00	99.72
98-55-139.3 metres											
Garnet	**SiO2**	**TiO2**	**Al2O3**	**Cr2O3**	**MgO**	**CaO**	**MnO**	**FeO**	**Na2O**	**K2O**	**Total**
139.3-gar-1c	40.51	0.19	17.93	6.88	16.52	6.96	0.55	10.30	0.07	0.00	99.92
139.3-gar-1r	40.35	0.19	18.07	6.70	16.74	6.78	0.53	10.24	0.09	0.01	99.70
139.3-gar-2c	40.57	0.21	17.95	6.91	16.41	7.00	0.58	10.38	0.04	0.01	100.07
139.3-gar-2r	40.55	0.18	18.28	6.17	16.75	6.73	0.58	10.32	0.04	0.00	99.61
139.3-gar-3c	40.66	0.18	17.75	6.93	16.40	7.04	0.53	10.51	0.04	0.00	100.03
139.3-gar-3r	40.50	0.19	17.75	6.75	16.64	6.94	0.47	10.41	0.04	0.01	99.70
139.3-gar-4c	40.53	0.22	17.85	6.88	16.54	7.11	0.55	10.22	0.04	0.01	99.94

Table 3. continued.

	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
139.3-gar-4r	40.52	0.19	18.22	6.71	16.59	6.84	0.53	10.37	0.04	0.00	100.00
139.3-gar-5c	40.47	0.24	17.78	6.96	16.45	7.13	0.55	10.24	0.03	0.01	99.88
139.3-gar-5r	40.55	0.20	17.96	6.59	16.53	6.90	0.53	10.37	0.02	0.02	99.66
139.3-gar-6c	40.40	0.22	17.54	7.10	16.39	7.00	0.54	10.40	0.05	0.00	99.64
139.3-gar-6r	41.25	0.18	19.21	5.56	17.50	6.30	0.55	10.46	0.04	0.01	101.05
139.3-gar-7c	40.39	0.19	17.88	6.83	16.49	6.96	0.50	10.34	0.04	0.01	99.64
139.3-gar-7r	41.04	0.18	18.34	6.32	16.95	6.70	0.49	10.39	0.05	0.02	100.48

Pyroxene	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
139.3-cpx-1c	54.88	0.14	1.36	1.49	16.69	21.56	0.10	2.29	1.34	0.02	99.88
139.3-cpx-1r	54.99	0.08	1.33	1.50	16.75	21.76	0.07	2.31	1.33	0.02	100.14
139.3-cpx-2c	54.95	0.09	1.31	1.37	16.66	21.63	0.07	2.27	1.34	0.02	99.72
139.3-cpx-2r	54.83	0.15	1.37	1.58	16.65	21.60	0.08	2.31	1.35	0.02	99.93
139.3-cpx-3c	54.97	0.07	1.37	1.53	16.82	21.68	0.09	2.42	1.35	0.04	100.34
139.3-cpx-3r	54.60	0.07	1.31	1.48	16.62	21.80	0.09	2.39	1.33	0.03	99.71
139.3-opx-1c	57.03	0.09	0.32	0.27	34.60	0.39	0.16	6.61	0.07	0.00	99.54
139.3-opx-1r	57.29	0.10	0.34	0.26	35.01	0.31	0.15	6.67	0.08	0.00	100.21
139.3-opx-2c	57.27	0.09	0.24	0.25	34.92	0.31	0.19	6.60	0.06	0.01	99.94
139.3-opx-2r	57.39	0.07	0.36	0.19	35.00	0.31	0.14	6.63	0.05	0.01	100.15
139.3-opx-3c	57.70	0.12	0.50	0.26	35.04	0.35	0.15	6.57	0.04	0.00	100.72
139.3-opx-3r	57.35	0.12	0.32	0.25	34.83	0.30	0.12	6.58	0.04	0.01	99.93

Olivine	SiO2	Cr2O3	MgO	CaO	MnO	FeO	NiO	Total	Ni (ppm)
139.3-oli-1c	40.52	0.01	47.88	0.01	0.11	10.89	0.467	99.90	3670
139.3-oli-1r	40.66	0.02	47.82	0.02	0.12	10.94	0.468	100.04	3678
139.3-oli-2c	40.64	0.02	48.19	0.02	0.12	11.09	0.464	100.54	3646
139.3-oli-2r	40.50	0.02	48.15	0.02	0.11	10.90	0.453	100.14	3560
139.3-oli-3c	40.58	0.02	48.20	0.02	0.11	10.86	0.472	100.26	3709
139.3-oli-3r	40.83	0.01	48.22	0.02	0.10	10.80	0.469	100.44	3685
139.3-oli-4c	40.44	0.01	48.12	0.01	0.10	10.88	0.476	100.04	3740
139.3-oli-4r	40.39	0.01	47.92	0.02	0.09	10.60	0.472	99.51	3709

Chromite	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
139.3-chr-1c	0.01	1.74	0.00	8.50	55.13	0.53	8.96	0.28	23.69	0.17	0.14	99.14	2.64	21.32	99.41
139.3-chr-1r	0.02	1.75	0.01	8.46	54.92	0.53	8.97	0.36	23.53	0.10	0.14	98.81	2.59	21.20	99.05
139.3-chr-2c	0.01	1.69	0.00	8.16	55.74	0.65	8.75	0.37	23.68	0.15	0.13	99.34	2.19	21.71	99.55
139.3-chr-2r	0.02	1.69	0.00	8.48	55.58	0.60	8.98	0.31	23.96	0.14	0.08	99.85	2.59	21.63	100.10
139.3-chr-3c	0.02	1.76	0.00	8.46	55.72	0.48	8.92	0.27	23.46	0.16	0.12	99.37	2.26	21.43	99.60
139.3-chr-3r	0.03	1.74	0.04	8.32	55.42	0.47	8.97	0.31	23.51	0.16	0.11	99.07	2.54	21.23	99.33

98-55-148.0 metres

Garnet	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
148.0-gar-1c	41.35	0.07	22.63	0.85	17.26	4.29	0.45	13.92	0.05	0.02	100.89
148.0-gar-1r	41.07	0.07	22.68	0.80	17.12	4.21	0.33	13.88	0.03	0.01	100.19
148.0-gar-2c	41.26	0.07	22.61	0.81	17.07	4.25	0.41	13.83	0.02	0.01	100.34
148.0-gar-2r	41.34	0.09	22.40	0.87	17.12	4.23	0.38	13.95	0.03	0.01	100.42
148.0-gar-3c	41.12	0.10	22.36	0.89	17.17	4.40	0.39	13.90	0.03	0.00	100.35
148.0-gar-3r	42.04	0.11	15.28	0.64	17.04	7.20	0.31	10.54	2.67	0.24	96.09

Table 3. continued.

Pyroxene	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
148.0-cpx-1c	55.10	0.07	2.69	0.43	15.79	20.51	0.06	3.60	1.78	0.02	100.05
148.0-cpx-1r	55.23	0.08	2.45	0.52	15.90	20.86	0.06	3.41	1.69	0.02	100.21
148.0-cpx-2c	54.87	0.10	2.75	0.38	15.77	20.39	0.09	3.33	1.83	0.02	99.53
148.0-cpx-2r	54.97	0.06	2.60	0.49	15.82	20.85	0.07	3.65	1.72	0.02	100.25
148.0-cpx-3c	54.70	0.07	2.68	0.46	15.59	20.24	0.09	3.52	1.83	0.02	99.20
148.0-cpx-3r	53.65	0.15	3.03	0.33	16.24	20.06	0.21	4.66	1.30	0.01	99.64
148.0-opx-1c	56.55	0.00	0.26	0.02	32.57	0.34	0.13	9.21	0.11	0.01	99.20
148.0-opx-1r	56.61	0.04	0.22	0.05	32.47	0.36	0.11	9.15	0.06	0.01	99.09
148.0-opx-2c	56.70	0.05	0.20	0.06	32.76	0.35	0.11	9.41	0.06	0.00	99.70
148.0-opx-2r	56.25	0.03	0.30	0.03	32.69	0.33	0.15	9.24	0.07	0.00	99.09
148.0-opx-3c	56.72	0.05	0.35	0.06	32.76	0.33	0.13	9.30	0.08	0.00	99.77
148.0-opx-3r	57.22	0.03	0.21	0.04	33.08	0.32	0.11	9.26	0.06	0.00	100.35

98-55-154.3 metres

Garnet	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
154.3-gar-1c	41.61	0.01	19.65	5.32	19.84	5.74	0.49	7.56	0.03	0.00	100.26
154.3-gar-1r	41.40	0.00	19.61	5.26	19.45	5.91	0.50	7.40	0.19	0.00	99.72
154.3-gar-2c	41.27	0.01	19.53	5.52	19.59	5.85	0.49	7.55	0.03	0.01	99.84
154.3-gar-2r	41.16	0.01	19.59	5.20	19.40	6.11	0.48	7.35	0.01	0.00	99.31
154.3-gar-3c	41.24	0.01	19.48	5.54	19.37	6.18	0.51	7.35	0.04	0.00	99.72
154.3-gar-3r	41.16	0.00	19.85	4.62	19.48	5.93	0.48	7.40	0.02	0.00	98.95

Pyroxene	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
154.3-cpx-1 (lamellae)	54.74	0.03	1.51	1.75	16.77	21.83	0.08	1.43	1.37	0.01	99.51
154.3-opx-1c	57.62	0.00	0.71	0.28	36.43	0.19	0.13	4.43	0.05	0.00	99.84
154.3-opx-1r	57.74	0.03	0.38	0.23	36.72	0.22	0.10	4.38	0.04	0.00	99.86
154.3-opx-2c	57.93	0.00	0.43	0.28	36.63	0.27	0.12	4.44	0.03	0.00	100.13
154.3-opx-2r	58.14	0.00	0.40	0.25	36.68	0.24	0.12	4.44	0.03	0.01	100.31
154.3-opx-3c	57.11	0.01	0.50	0.35	35.90	0.24	0.08	4.33	0.03	0.00	98.56
154.3-opx-3r	57.87	0.02	0.37	0.25	36.52	0.24	0.12	4.34	0.05	0.01	99.79

Chromite	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
154.3-chr-1 (lamellae)	0.05	0.05	0.06	14.20	55.59	0.21	12.40	0.25	15.48	0.08	0.15	98.51	0.63	14.91	98.58
154.3-chr-1c	0.00	0.05	0.00	11.77	59.31	0.35	11.72	0.31	16.00	0.02	0.08	99.61	0.00	16.00	99.61
154.3-chr-1r	0.03	0.06	0.06	11.72	59.26	0.26	11.87	0.36	15.93	0.05	0.11	99.70	0.23	15.72	99.73
154.3-chr-2c	0.00	0.04	0.01	11.59	59.25	0.21	11.78	0.28	16.02	0.05	0.17	99.41	0.48	15.59	99.45
154.3-chr-2r	0.00	0.07	0.06	11.92	59.12	0.27	12.01	0.32	16.18	0.01	0.16	100.10	0.54	15.70	100.17
154.3-chr-3c	0.00	0.05	0.02	11.64	59.21	0.25	11.69	0.27	15.92	0.07	0.19	99.30	0.19	15.75	99.33
154.3-chr-3r	0.02	0.05	0.00	11.68	59.21	0.27	11.78	0.28	16.07	0.08	0.16	99.61	0.34	15.76	99.63

98-56-45.3 metres

Garnet	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
45.3-gar-1c	41.47	0.08	20.38	4.14	18.49	5.93	0.54	9.38	0.04	0.01	100.46
45.3-gar-1r	41.77	0.09	20.73	3.95	18.49	5.81	0.51	9.27	0.04	0.01	100.67
45.3-gar-2c	41.35	0.08	20.35	4.12	18.41	5.85	0.52	9.41	0.02	0.02	100.15
45.3-gar-2r	41.78	0.08	20.75	3.93	18.82	5.81	0.57	9.36	0.02	0.01	101.14
45.3-gar-3c	41.45	0.08	20.59	3.88	18.57	5.73	0.52	9.44	0.02	0.01	100.30
45.3-gar-3r	41.46	0.07	20.48	3.99	18.41	5.64	0.56	9.30	0.26	0.00	100.17

Table 3. continued.

Pyroxene	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
45.3-cpx-1c	55.35	0.02	1.00	0.84	17.61	22.84	0.09	1.74	0.84	0.01	100.34
45.3-cpx-1r	55.41	0.00	1.01	0.88	17.52	23.01	0.10	1.87	0.88	0.01	100.68
45.3-cpx-2c	55.09	0.09	0.89	0.82	17.63	22.99	0.10	1.85	0.67	0.05	100.18
45.3-cpx-2r	55.00	0.03	0.99	0.81	17.57	23.11	0.07	1.85	0.78	0.03	100.25
45.3-cpx-3c	54.95	0.03	0.87	0.74	17.37	22.99	0.10	1.76	0.80	0.01	99.62
45.3-cpx-3r	55.30	0.08	0.91	0.79	17.55	23.07	0.03	1.83	0.82	0.02	100.41
45.3-opx-1c	57.68	0.00	0.36	0.21	35.70	0.28	0.14	5.87	0.12	0.01	100.36
45.3-opx-1r	57.49	0.00	0.30	0.19	35.73	0.28	0.10	5.85	0.05	0.01	99.99
45.3-opx-2c	57.77	0.00	0.27	0.20	35.81	0.25	0.13	5.85	0.03	0.00	100.33
45.3-opx-2r	57.65	0.05	0.40	0.16	35.56	0.29	0.14	5.77	0.04	0.00	100.06
45.3-opx-3c	58.21	0.05	0.34	0.17	35.85	0.24	0.16	5.88	0.05	0.00	100.95
45.3-o, x-3r	58.01	0.03	0.41	0.16	35.84	0.28	0.14	5.79	0.04	0.00	100.69

Olivine	SiO2	Cr2O3	MgO	CaO	MnO	FeO	NiO	Total	Ni ppm
45.3-oli-1c	41.02	0.03	48.92	0.02	0.11	9.37	0.400	99.87	3143
45.3-oli-1r	41.09	0.00	48.89	0.02	0.13	9.37	0.389	99.89	3057
45.3-oli-2c	40.89	0.01	48.68	0.03	0.10	9.55	0.394	99.66	3096
45.3-oli-2r	40.94	0.05	48.70	0.02	0.10	9.26	0.391	99.46	3073
45.3-oli-3c	40.78	0.02	49.11	0.02	0.13	9.36	0.401	99.82	3151
45.3-oli-3r	40.93	0.01	48.98	0.02	0.12	9.37	0.388	99.82	3049

98-56-54.5 metres

Garnet	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
54.5-gar-1c	41.90	0.12	21.20	3.30	20.14	5.04	0.43	8.02	0.04	0.00	100.19
54.5-gar-1r	41.51	0.10	20.89	3.76	19.98	5.25	0.41	7.91	0.04	0.02	99.84
54.5-gar-2c	41.85	0.08	21.20	3.33	20.36	5.03	0.44	8.15	0.03	0.00	100.47
54.5-gar-2r	41.59	0.07	20.96	3.72	20.14	5.19	0.41	8.01	0.04	0.01	100.12
54.5-gar-3c	41.69	0.09	20.96	3.28	20.09	5.09	0.46	8.08	0.05	0.01	99.80
54.5-gar-3r	41.66	0.06	20.95	3.64	20.10	5.21	0.43	8.06	0.03	0.01	100.15

Pyroxene	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
54.5-cpx-1c	52.52	0.05	1.78	1.34	15.76	21.04	0.09	1.59	1.34	0.02	95.53
54.5-cpx-1r	54.42	0.20	0.67	1.17	17.10	22.87	0.10	2.44	0.83	0.01	99.80
54.5-cpx-2c	54.94	0.10	1.85	1.34	16.77	21.53	0.09	1.67	1.53	0.04	99.85
54.5-cpx-2r	55.20	0.01	1.66	1.56	16.80	21.66	0.06	1.65	1.48	0.02	100.09
54.5-cpx-3c	54.88	0.07	1.95	1.44	16.72	21.62	0.06	1.65	1.51	0.02	99.93
54.5-cpx-3r	55.08	0.09	1.81	1.42	16.69	21.51	0.05	1.70	1.49	0.01	99.87
54.5-opx-2c	57.90	0.06	0.28	0.25	36.37	0.31	0.11	4.85	0.06	0.00	100.18
54.5-opx-2c	57.93	0.02	0.42	0.27	36.09	0.33	0.12	4.79	0.10	0.01	100.07
54.5-opx-2r	58.03	0.05	0.41	0.22	36.30	0.30	0.10	4.79	0.06	0.00	100.27
54.5-opx-2r	58.03	0.07	0.36	0.20	36.49	0.27	0.13	4.81	0.05	0.00	100.41
54.5-opx-3c	57.89	0.01	0.38	0.21	36.23	0.30	0.10	4.76	0.07	0.01	99.96
54.5-opx-3r	57.96	0.02	0.50	0.22	36.41	0.27	0.11	4.77	0.07	0.01	100.32

Olivine	SiO2	Cr2O3	MgO	CaO	MnO	FeO	NiO	Total	Ni ppm
54.5-oli-1c	41.22	0.04	49.98	0.01	0.08	7.79	0.398	99.53	3128
54.5-oli-1r	41.52	0.00	50.64	0.01	0.10	7.76	0.395	100.41	3104
54.5-oli-2c	41.30	0.02	50.17	0.00	0.08	7.78	0.395	99.74	3104
54.5-oli-2r	40.84	0.02	49.71	0.01	0.09	7.81	0.395	98.87	3104
54.5-oli-3c	41.13	0.01	49.90	0.03	0.10	7.65	0.397	99.20	3120
54.5-oli-3r	41.39	0.00	50.35	0.02	0.09	7.79	0.400	100.03	3143

Table 3. continued.

Chromite	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
54.5-chr-1c	0.03	0.22	0.00	24.53	39.04	0.26	11.83	0.41	22.63	0.04	0.14	99.13	5.45	17.72	99.68
54.5-chr-1r	0.04	0.03	0.00	47.97	15.69	0.11	17.04	0.44	17.14	0.04	0.05	98.54	4.71	12.90	99.02
54.5-chr-2c	0.06	0.33	0.00	19.20	43.57	0.20	10.70	0.46	24.23	0.12	0.10	98.97	6.34	18.53	99.60
54.5-chr-2r	0.02	0.07	0.02	42.64	22.12	0.13	16.36	0.44	17.25	0.02	0.09	99.17	4.35	13.34	99.60

98-56-137.2 metres

Garnet	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
137.2-gar-1c	41.99	0.00	20.77	3.93	20.45	5.61	0.28	7.05	0.05	0.02	100.15
137.2-gar-1r	41.88	0.01	20.82	3.92	20.30	5.63	0.30	6.97	0.02	0.02	99.88
137.2-gar-2c	41.89	0.00	20.75	3.80	20.53	5.54	0.29	6.99	0.03	0.00	99.82
137.2-gar-2r	42.20	0.00	21.13	3.73	20.55	5.63	0.33	7.05	0.05	0.02	100.69
137.2-gar-3c	41.84	0.00	20.83	3.72	20.38	5.65	0.30	7.09	0.09	0.02	99.92
137.2-gar-3r	41.83	0.02	20.73	4.14	20.52	5.61	0.30	7.00	0.01	0.01	100.17

Pyroxene	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
137.2-cpx-1c	55.28	0.00	1.14	1.18	17.75	22.83	0.07	1.40	0.90	0.01	100.56
137.2-cpx-1r	46.83	0.14	12.32	1.93	20.25	8.80	0.12	3.07	3.70	0.47	97.64
137.2-cpx-2c	55.09	0.00	1.07	0.95	17.77	22.63	0.10	1.50	0.86	0.06	100.03
137.2-cpx-2r	54.54	0.01	1.19	1.11	17.09	22.28	0.02	1.64	0.87	0.04	98.78
137.2-cpx-3c	55.10	0.00	1.02	0.94	17.48	22.78	0.03	1.30	0.88	0.03	99.57
137.2-cpx-3r	55.19	0.00	1.08	1.07	17.58	22.82	0.06	1.40	0.88	0.02	100.09
137.2-opx-1c	58.38	0.02	0.46	0.24	36.90	0.23	0.06	4.13	0.03	0.00	100.45
137.2-opx-1r	58.05	0.00	0.45	0.24	36.95	0.26	0.08	4.22	0.04	0.01	100.29
137.2-opx-2c	58.41	0.01	0.47	0.20	36.94	0.19	0.08	4.02	0.04	0.00	100.37
137.2-opx-2r	57.98	0.00	0.47	0.23	36.90	0.27	0.04	4.11	0.05	0.00	100.05
137.2-opx-3c	58.18	0.00	0.43	0.26	36.67	0.25	0.04	4.10	0.06	0.00	99.99
137.2-opx-3r	58.11	0.02	0.42	0.29	36.81	0.27	0.08	4.16	0.06	0.02	100.24

98-58-145.0 metres

Pyroxene	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
145-cpx-2c	54.89	0.00	1.40	0.88	17.57	23.11	0.08	1.47	0.82	0.00	100.23
145-cpx-2r	55.01	0.00	1.51	0.97	17.71	23.19	0.07	1.45	0.82	0.01	100.74
145-cpx-3c	55.19	0.01	1.38	0.86	17.72	23.10	0.09	1.35	0.78	0.00	100.49
145-cpx-3r	54.79	0.00	1.43	0.89	17.61	22.64	0.08	1.54	0.78	0.03	99.79
145-opx-1c	57.84	0.00	1.03	0.33	36.58	0.25	0.10	4.43	0.02	0.00	100.58
145-opx-1r	57.67	0.01	0.95	0.28	36.39	0.26	0.08	4.48	0.03	0.00	100.15
145-opx-2c	58.19	0.02	1.11	0.33	36.67	0.27	0.13	4.47	0.03	0.00	101.22
145-opx-2r	57.79	0.03	1.06	0.31	36.38	0.24	0.15	4.51	0.02	0.00	100.49
145-opx-3c	57.82	0.04	0.95	0.27	36.56	0.21	0.14	4.48	0.02	0.00	100.49
145-opx-3r	57.75	0.00	0.97	0.34	36.53	0.21	0.12	4.61	0.01	0.01	100.55

Olivine	SiO2	Cr2O3	MgO	CaO	MnO	FeO	NiO	Total	Ni ppm
145.0-oli-1c	41.34	0.03	50.94	0.01	0.12	7.15	0.391	99.97	3073
145.0-oli-1r	41.30	0.01	50.74	0.02	0.10	7.10	0.383	99.66	3010
145.0-oli-2c	41.20	0.00	50.92	0.01	0.12	7.19	0.388	99.82	3049
145.0-oli-2r	41.28	0.02	50.93	0.01	0.11	7.08	0.380	99.81	2986
145.0-oli-3c	41.11	0.00	50.81	0.01	0.11	7.22	0.380	99.64	2986
145.0-oli-3r	41.37	0.01	50.93	0.01	0.11	7.07	0.377	99.88	2963

Chromite	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
145-chr-1c	0.01	0.00	0.02	19.73	50.50	0.25	13.44	0.24	15.06	0.10	0.12	99.47	0.69	14.44	99.54
145-chr-1r	0.00	0.00	0.00	19.79	50.45	0.19	13.44	0.28	14.95	0.08	0.11	99.29	0.77	14.26	99.37

Table 3. continued.

Chromite	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
145-chr-2c	0.01	0.01	0.03	19.70	50.94	0.27	13.51	0.26	14.75	0.10	0.15	99.74	0.38	14.41	99.77
145-chr-2r	0.00	0.01	0.00	19.57	50.54	0.24	13.55	0.29	14.93	0.09	0.14	99.35	0.90	14.12	99.45
145-chr-3c	0.01	0.00	0.01	20.10	50.44	0.25	13.44	0.27	14.89	0.08	0.11	99.61	0.41	14.53	99.64
145-chr-3r	0.00	0.01	0.00	19.61	50.71	0.22	13.61	0.24	15.07	0.08	0.13	99.69	0.99	14.18	99.78

98-58-203.0 metres

Garnet	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
203-gar-2c	40.64	0.19	19.11	5.50	16.29	6.87	0.70	11.02	0.02	0.00	100.35
203-gar-2r	40.62	0.15	19.11	5.48	16.36	6.94	0.67	10.99	0.01	0.00	100.33
203-gar-3c	40.56	0.16	18.91	5.26	16.21	6.74	0.70	11.01	0.01	0.00	99.57
203-gar-3r	40.80	0.16	19.20	5.35	16.34	6.83	0.68	11.11	0.00	0.00	100.50
Pyroxene	**SiO2**	**TiO2**	**Al2O3**	**Cr2O3**	**MgO**	**CaO**	**MnO**	**FeO**	**Na2O**	**K2O**	**Total**
203-cpx-1c	55.05	0.11	0.69	0.78	17.54	22.97	0.14	2.25	0.61	0.00	100.14
203-cpx-1r	54.91	0.14	0.64	0.81	17.64	22.93	0.10	2.33	0.61	0.01	100.12
203-cpx-2c	54.80	0.09	0.92	0.97	17.43	22.72	0.08	2.32	0.82	0.00	100.14
203-cpx-2r	54.79	0.13	0.91	0.87	17.20	22.74	0.12	2.40	0.77	0.00	99.93
203-cpx-3c	55.32	0.12	0.72	0.78	17.50	23.07	0.09	2.24	0.59	0.00	100.44
203-cpx-3r	54.95	0.10	0.68	0.79	17.48	23.19	0.10	2.32	0.61	0.00	100.21
203-opx-1c	56.94	0.12	0.31	0.25	34.17	0.35	0.16	7.19	0.01	0.00	99.50
203-opx-1r	57.54	0.11	0.40	0.19	34.61	0.28	0.18	7.16	0.01	0.00	100.50
203-opx-2c	57.08	0.07	0.22	0.20	34.55	0.26	0.15	7.10	0.02	0.00	99.66
203-opx-2r	57.39	0.08	0.47	0.22	34.60	0.31	0.22	7.29	0.00	0.00	100.59
203-opx-3c	57.32	0.07	0.31	0.23	34.45	0.29	0.17	7.12	0.01	0.00	99.96
203-opx-3r	56.75	0.09	0.24	0.17	34.08	0.29	0.17	7.12	0.02	0.00	98.93

Olivine	SiO2	Cr2O3	MgO	CaO	MnO	FeO	NiO	Total	Ni ppm
203-oli-1c	40.60	0.01	47.02	0.00	0.14	11.81	0.401	99.97	3151
203-oli-1r	40.39	0.00	46.63	0.04	0.16	11.73	0.396	99.34	3112
203-oli-2c	40.46	0.03	47.26	0.01	0.11	11.80	0.403	100.07	3167
203-oli-2r	40.53	0.03	47.15	0.02	0.19	11.85	0.394	100.17	3096
203-oli-3c	40.54	0.04	47.22	0.02	0.17	11.79	0.392	100.18	3080
203-oli-3r	40.48	0.05	47.04	0.01	0.18	11.66	0.394	99.83	3096

Chromite	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
203-chr-1c	0.00	1.85	0.01	8.85	54.30	0.47	8.36	0.38	25.18	0.12	0.10	99.62	3.05	22.43	99.93
203-chr-2c	0.02	1.81	0.00	9.06	53.81	0.51	8.41	0.43	24.84	0.13	0.08	99.09	2.91	22.22	99.39

98-58-207.8 metres

Garnet	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
207.8-gar-1c	42.41	0.08	23.08	1.17	21.40	4.46	0.35	7.78	0.02	0.00	100.75
207.8-gar-1r	42.04	0.10	22.26	2.13	20.67	4.60	0.36	8.02	0.03	0.00	100.21
207.8-gar-2c	42.24	0.09	22.24	2.08	21.01	4.64	0.36	8.00	0.02	0.00	100.68
207.8-gar-3c	42.26	0.10	22.48	1.84	21.03	4.60	0.36	8.06	0.02	0.01	100.76
207.8-gar-3r	42.96	0.09	22.91	2.15	21.30	4.62	0.39	8.03	0.01	0.00	102.46
Pyroxene	**SiO2**	**TiO2**	**Al2O3**	**Cr2O3**	**MgO**	**CaO**	**MnO**	**FeO**	**Na2O**	**K2O**	**Total**
207.8-opx-1c	58.49	0.09	0.44	0.14	36.51	0.29	0.10	4.83	0.05	0.01	100.96
207.8-opx-1r	57.98	0.10	0.55	0.17	36.48	0.27	0.16	4.80	0.06	0.00	100.57
207.8-opx-2c	58.01	0.05	0.44	0.17	36.19	0.30	0.09	4.87	0.03	0.00	100.15
207.8-opx-2r	58.11	0.07	0.45	0.17	36.40	0.24	0.13	4.79	0.04	0.01	100.41
207.8-opx-3c	58.09	0.02	0.54	0.19	36.42	0.29	0.09	4.88	0.03	0.00	100.55
207.8-opx-3r	57.58	0.04	0.41	0.13	36.01	0.24	0.10	4.85	0.04	0.00	99.39

Olivine	SiO2	Cr2O3	MgO	CaO	MnO	FeO	NiO	Total	Ni ppm
207.8-oli-1c	41.48	0.00	50.48	0.01	0.11	7.69	0.418	100.18	3285
207.8-oli-1r	41.04	0.02	50.10	0.01	0.10	7.78	0.417	99.47	3277
207.8-oli-3c	41.34	0.03	50.33	0.01	0.07	7.77	0.429	99.98	3371
207.8-oli-3r	41.39	0.00	50.53	0.02	0.06	7.66	0.427	100.08	3355

Table 4. Compiled analyses for corundum associated with kimberlite.

Reference	SiO2	TiO2	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	Fe2O3*	NiO	ZnO	Na2O	K2O	Total
1	0.01	0.04	98.60	1.07	0.04	0.00		0.02		0.86					100.64
1	0.02	0.00	97.60	1.36	NA	0.00		0.00		0.48					99.46
2	0.00	0.03	99.78	0.07		0.04	0.00	0.00	0.08						100.01
3	0.00	0.18	98.98	0.25		0.10		0.00	0.59		0.00				100.09
3	0.00	0.22	98.95	0.29		0.09		0.00	0.66		0.06				100.27
3	0.00	0.21	99.37	0.09		0.10		0.00	0.67		0.00				100.44
3	0.00	0.20	98.99	0.12		0.09		0.00	0.55				0.01	0.01	99.97
3	0.00	0.23	98.86	0.15		0.11		0.01	0.66			0.02			100.04
3	0.23	0.61	98.03	0.38		0.24	0.16	0.00	0.96		0.29				100.90
4	0.00	0.00	96.18	3.24		0.19	0.00	0.00	0.64		0.00				100.25
5	0.29	0.09	97.40	1.30		0.13	0.02	0.02	0.22		0.01		0.04	0.00	99.50

Notes: References: 1, Dawson et al. 1997; 2, Smyth et al. 1984; 3, Mazzone and Haggerty 1989; 4, Padorani and Tracy 1981 (sample from Moses Rock dike, not true kimberlite); 5, Meyer and Gubelin 1981 (ruby inclusion in diamond). NA, not analyzed; * value given is for total iron.

Table 5. Proton microprobe analyses of garnet-olivine pairs, Tandem-1 kimberlite

Sample	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Rb	Sr	Y	Zr	Nb	Mo	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Cs	Ba	La	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Th	U
Garnet																																									
98-55-139.3 - gar-1	43	30	0	11	7	4	1	0	1	1	0	10	13	3	1	0	0	1	0	5	0	0	0	18	0	0	0	25	1	0	3	2	0	10	7	0	4	0	0	0	0
98-55-139.3 - gar-1	9	28	0	9	2	3	0	1	0	0	0	14	16	0	1	0	0	0	0	0	0	1	0	0	0	0	0	21	8	0	3	0	0	0	0	0	4	4	1	0	0
98-55-139.3 - gar-1	82	41	6	11	4	5	0	2	0	1	0	13	15	0	2	0	2	0	0	0	5	0	4	0	0	0	0	0	0	0	2	0	9	6	0	0	0	1	0	6	0
98-55-139.3 - gar-2	69	26	11	10	8	3	2	2	0	0	3	13	12	1	0	0	2	0	0	3	0	0	0	0	0	7	31	66	0	0	3	0	7	0	1	5	8	3	3	0	4
98-55-139.3 - gar-2	27	30	6	12	7	3	1	0	0	0	1	13	16	0	2	0	0	4	0	2	0	0	0	0	23	22	26	0	0	0	0	0	5	1	4	0	0	0	2	3	0
98-55-139.3 - gar-2	57	29	5	10	4	4	1	0	0	0	4	15	14	1	0	1	5	0	0	0	0	3	0	23	0	0	0	0	3	0	0	0	3	5	4	2	2	0	1	0	4
98-55-139.3 - gar-3	28	26	0	8	7	4	0	1	1	0	1	11	14	0	2	2	0	1	0	7	0	0	6	10	0	0	0	0	11	5	13	9	9	2	3	0	2	1	4	0	0
98-55-139.3 - gar-3	78	34	6	9	7	2	0	0	0	2	0	12	14	0	0	0	0	0	0	1	1	0	0	12	0	0	11	0	0	4	0	1	3	0	3	3	2	3	1	2	0
98-55-139.3 - gar-3	30	33	6	14	7	4	3	0	2	0	2	13	16	0	3	4	0	5	0	1	0	0	0	0	36	5	0	0	0	2	12	2	8	8	12	0	5	0	0	0	0
98-56-54.5 - gar	48	82	10	70	4	3	4	0	0	221	68	5	15	16	0	0	3	2	1	1	0	0	11	0	0	31	937	0	5	0	9	2	9	10	2	1	3	1	2	0	2
98-56-54.5 - gar	20	29	0	11	2	3	0	0	0	0	1	13	4	0	1	1	0	1	4	0	3	0	0	0	40	0	51	0	3	7	0	4	2	0	1	0	0	0	2	0	1
98-56-54.5 - gar	18	20	4	5	2	2	2	0	1	0	0	12	4	3	1	0	0	0	2	7	0	1	0	3	0	8	0	90	7	0	6	0	10	3	0	0	0	0	0	2	0
98-58-203.0 - gar-1	63	33	0	5	7	3	0	1	1	0	0	27	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	8	0	0	1	1	1	1	0	2	0	6
98-58-203.0 - gar-1	35	23	2	9	7	3	0	1	0	0	0	26	4	0	1	3	3	4	1	4	1	0	0	0	8	0	0	37	0	5	4	7	6	5	7	6	3	0	4	0	1
98-58-203.0 - gar-1	34	29	0	9	9	2	1	1	0	0	2	25	3	1	0	0	1	1	0	0	0	9	0	24	0	22	19	0	0	2	2	0	3	0	2	0	1	3	0	4	0
98-58-203.0 - gar-2	50	36	1	10	9	3	1	0	1	0	1	22	2	0	0	0	2	2	0	4	3	0	0	0	10	0	0	24	6	1	5	0	0	5	6	2	0	0	0	0	6
98-58-203.0 - gar-2	33	66	0	8	7	3	0	0	0	0	5	26	2	0	0	0	0	3	0	3	10	0	0	0	0	17	21	22	3	10	5	1	5	3	1	0	1	4	2	0	4
98-58-203.0 - gar-2	13	19	0	7	7	5	0	0	1	0	0	25	3	0	0	0	0	4	0	0	0	0	4	0	12	0	0	0	2	1	3	0	6	4	5	0	5	2	0	2	0
98-58-203.0 - gar-3	38	31	4	11	10	5	0	0	0	0	1	22	3	2	0	0	0	5	0	5	1	8	0	7	0	16	0	55	0	5	0	8	7	7	0	0	2	2	1	3	0
98-58-203.0 - gar-3	52	31	0	7	8	4	0	0	0	0	1	27	0	0	1	0	0	0	0	3	8	7	0	0	0	40	0	71	4	0	2	2	3	10	2	0	0	0	0	0	2
98-58-203.0 - gar-3	26	79	0	10	5	2	1	0	0	2	0	25	2	0	0	2	0	1	0	0	0	0	0	0	0	0	68	32	0	8	2	1	0	0	2	0	2	0	0	4	1
Olivine																																									
98-55-139.3 - ol-1	159	3713	12	65	0	2	0	2	0	0	1	1	1	0	0	0	0	3	0	0	3	0	0	0	0	0	0	27	8	0	0	0	9	6	6	0	1	1	1	4	2
98-55-139.3 - ol-1	160	3717	16	62	0	2	0	0	0	0	0	2	0	1	1	1	0	1	1	6	2	0	0	9	0	0	26	0	4	0	5	6	0	2	1	1	1	4	0	0	0
98-55-139.3 - ol-1	113	3716	13	60	0	1	2	0	2	0	0	1	0	0	0	0	0	0	2	2	0	2	0	0	0	0	0	0	5	8	9	0	7	2	1	0	4	3	0	1	1
98-55-139.3 - ol-2	255	3693	22	63	3	2	1	1	0	0	0	0	0	1	1	0	1	1	2	3	3	0	0	8	0	0	11	20	6	0	6	5	4	0	2	0	0	1	3	0	2
98-55-139.3 - ol-2	131	3740	24	71	0	1	3	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	5	0	0	7	0	7	0	0	0	8	1	0	1	3	1	0	0	0
98-55-139.3 - ol-2	134	3745	19	69	0	1	1	0	1	0	1	1	0	1	1	0	0	0	5	1	0	0	5	0	0	0	0	0	11	1	0	2	2	0	2	0	0	0	0	0	1
98-55-139.3 - ol-3	103	3726	25	66	0	2	0	0	0	0	1	0	1	1	0	1	2	1	0	0	0	5	0	10	17	0	0	32	0	0	11	0	6	4	0	0	3	1	0	1	0
98-55-139.3 - ol-3	227	3717	14	62	0	0	1	0	0	0	0	2	0	0	2	1	0	0	3	2	3	0	0	0	0	0	9	0	3	0	0	0	5	0	0	0	2	0	0	1	0
98-55-139.3 - ol-3	96	3776	16	66	0	2	1	0	0	0	0	0	0	1	0	2	0	0	0	5	0	8	2	0	6	0	0	0	0	0	0	0	0	8	5	5	0	0	1	2	0	2
98-56-54.5 - ol	22	3060	13	59	0	1	1	0	0	1	1	1	0	1	0	2	0	0	4	0	3	9	0	0	0	0	0	69	0	0	0	2	0	0	0	4	1	3	0	0	1
98-56-54.5 - ol	64	3086	16	57	0	1	5	0	0	1	8	0	3	1	2	0	3	0	0	2	0	3	8	0	0	31	0	0	0	1	3	1	11	8	3	0	3	4	3	0	0
98-56-54.5 - ol	58	3095	21	55	0	2	3	0	2	0	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	16	10	3	5	0	6	3	1	0	0	0	1	1	1
98-58-203.0 - ol-1	191	3173	19	61	0	3	0	0	0	0	1	0	0	3	1	0	1	5	0	0	0	0	0	0	7	20	18	0	0	0	9	0	5	3	4	4	3	0	0	2	2
98-58-203.0 - ol-1	143	3177	14	59	2	0	3	0	1	0	0	0	0	2	1	0	0	0	6	1	0	0	5	12	0	19	25	0	0	0	3	0	3	10	4	3	0	0	0	0	4
98-58-203.0 - ol-1	163	3213	13	63	0	3	0	1	1	0	1	1	0	2	1	0	0	0	0	0	0	0	0	10	11	0	0	21	0	0	0	0	4	2	0	0	0	0	0	0	0
98-58-203.0 - ol-2	121	3178	20	56	4	0	1	1	1	0	1	0	1	2	1	0	0	0	0	0	4	0	0	0	18	0	14	25	1	6	6	0	0	7	3	0	0	0	3	0	0
98-58-203.0 - ol-2	146	3187	17	57	2	1	1	1	0	0	1	0	0	0	0	0	0	2	0	7	0	0	12	3	7	16	48	22	0	0	1	0	5	8	6	0	3	0	0	1	3
98-58-203.0 - ol-2	166	3244	6	62	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	1	4	0	2	0	20	0	26	0	0	0	0	5	2	6	4	0	0	4	0	0	2
98-58-203.0 - ol-3	164	3171	6	57	2	3	0	0	0	0	1	0	0	4	1	1	1	0	0	7	5	0	3	6	7	15	0	0	0	0	1	0	3	1	3	2	0	1	0	0	1
98-58-203.0 - ol-3	131	3158	12	58	0	2	1	1	0	3	0	0	0	5	0	2	0	0	0	0	1	3	0	15	0	20	11	0	0	6	3	1	4	2	0	0	1	2	0	3	3
98-58-203.0 - ol-3	148	3176	7	61	1	2	0	0	0	0	0	0	0	4	0	2	1	2	0	0	0	13	0	0	12	21	0	0	4	1	1	0	2	5	3	3	1	2	0	0	0

Note: analysis provided by W. Teesdale, Analyst, University of Guelph, Guelph, Ontario.

Table 6. Garnet-olivine geothermometry (Griffin et al. 1989; Griffin and Ryan 1995).

Sample	Ni - Garnet	Ni - Olivine	Temp. (K)	Temp. (C)
98-55-139.3 - 1	30	3713	1136.7	863.7
98-55-139.3 - 1	28	3717	1120.1	847.1
98-55-139.3 - 1	41	3716	1217.0	944.0
98-55-139.3 - 2	26	3693	1104.5	831.5
98-55-139.3 - 2	30	3740	1135.0	862.0
98-55-139.3 - 2	29	3745	1126.6	853.6
98-55-139.3 - 3	26	3726	1102.5	829.5
98-55-139.3 - 3	34	3717	1167.4	894.4
98-55-139.3 - 3	33	3776	1155.9	882.9
98-56-54.5	82	3060	1523.4	1250.4
98-56-54.5	29	3086	1174.3	901.3
98-56-54.5	20	3095	1085.4	812.4
98-58-203.0 - 1	33	3173	1200.9	927.9
98-58-203.0 - 1	23	3177	1110.9	837.9
98-58-203.0 - 1	29	3213	1164.0	891.0
98-58-203.0 - 2	36	3178	1224.3	951.3
98-58-203.0 - 2	66	3187	1419.6	1146.6
98-58-203.0 - 2	19	3244	1064.3	791.3
98-58-203.0 - 3	31	3171	1184.5	911.5
98-58-203.0 - 3	31	3158	1185.6	912.6
98-58-203.0 - 3	79	3176	1491.9	1218.9
Average				
98-55-139.3	30.8	3727	1142.2	869.2
98-56-54.5	24.5	3083	1132.8	859.8
98-58-203.0	30.5	3187	1179.0	906.0

Notes:

98-56-54.5: high Ni value of 82 in garnet not included in average

98-58-203.0: high Ni values of 66 and 79 and low value of 19 in garnet not included in average

Table 7. Corundum analysis with accompanying cell volumes, Tandem-1 kimberlite.

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	a (A)	c(A)	Volume
99-115														4.764(8)	13.033(7)	256.2(1)
99-116	0.00	0.02	0.00	96.34	3.75	0.03	0.00	0.00	0.00	0.32	0.02	0.04	100.54	4.774(4)	13.020(3)	256.9(5)
99-117a	0.01	0.01	0.00	94.03	5.28	0.05	0.00	0.00	0.00	0.39	0.00	0.00	99.77	4.770(3)	13.010(3)	256.5(5)
99-118	0.01	0.01	0.00	95.22	4.61	0.06	0.00	0.01	0.00	0.29	0.00	0.00	100.22	4.770(3)	13.040(2)	257.0(3)
99-119	0.01	0.00	0.05	94.42	4.80	0.09	0.01	0.00	0.00	0.35	0.00	0.00	99.74	4.774(1)	13.011(7)	256.9(1)
99-120	0.03	0.02	0.02	94.20	5.57	0.00	0.00	0.00	0.01	0.40	0.05	0.01	100.29	4.7688(9)	13.045(6)	256.9(1)
99-121a	0.10	0.02	0.05	94.30	4.82	0.06	0.00	0.01	0.01	0.35	0.03	0.05	99.82	4.778(2)	13.040(1)	257.9(2)
99-122	0.02	0.01	0.03	94.19	5.24	0.03	0.00	0.00	0.00	0.33	0.01	0.03	99.88	4.766(2)	13.000(2)	255.7(3)
99-123	0.02	0.02	0.02	94.02	5.35	0.09	0.00	0.01	0.00	0.37	0.01	0.02	99.93	4.770(1)	13.027(9)	256.7(1)
99-124	0.04	0.01	0.01	96.05	3.96	0.02	0.00	0.01	0.00	0.31	0.00	0.02	100.42	4.772(1)	13.026(8)	256.8(1)
99-125	0.00	0.01	0.00	93.70	5.64	0.00	0.00	0.00	0.00	0.40	0.00	0.00	99.76	4.771(2)	13.020(2)	256.5(3)
99-126	0.00	0.03	0.00	93.56	5.61	0.00	0.00	0.00	0.02	0.28	0.02	0.00	99.53	4.773(1)	12.998(8)	256.8(1)
99-127	0.01	0.02	0.00	95.38	3.72	0.04	0.00	0.00	0.00	0.31	0.00	0.01	99.50	4.776(2)	13.020(3)	257.3(3)
synthetic														4.7588(1)	12.992(1)	254.8(1)
Duplicate Analysis																
99-121b	0.00	0.02	0.04	94.32	4.98	0.02	0.00	0.00	0.01	0.33	0.05	0.00	99.76			
99-117b	0.02	0.01	0.00	94.24	4.93	0.04	0.00	0.00	0.00	0.28	0.02	0.01	99.56			
99-117c	0.01	0.03	0.00	94.14	4.67	0.07	0.00	0.00	0.03	0.37	0.03	0.02	99.39			
99-117d	0.00	0.02	0.06	94.69	4.68	0.00	0.00	0.00	0.01	0.34	0.02	0.00	99.81			

Garnet inclusion within corundum

	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	Na2O	K2O	Total
99-128-gar-1a	39.76	0.06	21.12	1.87	10.18	14.44	0.07	11.24	0.00	0.00	98.76
99-128-gar-1b	39.95	0.06	20.90	2.26	10.10	14.43	0.09	11.74	0.00	0.01	99.53
99-128-gar-1c	40.09	0.07	20.73	2.22	10.09	14.59	0.09	11.55	0.00	0.00	99.42

Notes: sample 115 was lost after x-ray investigation; sample 117, multiple analysis of fragments of same grain; sample 121, analysis of two spots on same grain; synthetic, cell data for synthetic corundum from ICDD (1993); crystallographic data in angstroms, unit in brackets is the plus or minus value.

Appendix

B-30. Orthopyroxene

Sample	S.F.(mm)	Na2O	MgO	Al2O3	SiO2	Cr2O3	MnO	FeO	K2O	CaO	TiO2	Total
B-30-opx2-1	0.6-1.0	0.12	34.21	1.13	56.77	0.47	0.11	5.51	0.00	1.54	0.19	100.06
B-30-opx2-5	0.6-1.0	0.23	35.24	1.02	57.50	0.56	0.14	4.69	0.00	0.80	0.24	100.42
B-30-opx2-7	0.6-1.0	0.24	35.42	0.94	57.28	0.50	0.13	4.65	0.00	0.80	0.23	100.19
B-30-opx2-12	0.6-1.0	0.01	35.92	0.63	57.67	0.16	0.17	5.03	0.01	0.19	0.00	99.79
B-30-opx2-18	0.6-1.0	0.02	36.18	0.77	57.39	0.27	0.14	5.14	0.00	0.22	0.03	100.14
B-30-opx2-20	0.6-1.0	0.21	33.75	1.29	56.25	0.27	0.12	6.54	0.01	1.23	0.20	99.86
B-30-opx2-21	0.6-1.0	0.13	34.11	1.14	56.24	0.43	0.11	5.47	0.00	1.52	0.21	99.37
B-30-opx2-30	0.6-1.0	0.19	33.49	1.23	55.73	0.37	0.16	6.35	0.00	1.35	0.22	99.10
B-30-opx2-37	0.6-1.0	0.25	34.89	0.94	55.35	0.54	0.13	4.64	0.00	0.80	0.24	97.77
B-30-opx2-39	0.6-1.0	0.00	35.95	0.75	56.17	0.23	0.16	5.10	0.00	0.18	0.00	98.54
B-30-opx2-46	0.6-1.0	0.21	33.37	1.33	55.12	0.24	0.14	6.36	0.00	1.38	0.24	98.39
B-30-opx2-49	0.6-1.0	0.22	32.51	1.07	54.43	0.00	0.16	9.11	0.00	0.88	0.21	98.58
B-30-opx2-50	0.6-1.0	0.23	33.63	1.29	54.95	0.24	0.13	6.41	0.01	1.30	0.22	98.38
B-30-opx2-62	0.6-1.0	0.22	32.26	1.01	54.26	0.01	0.20	8.77	0.00	0.95	0.23	97.91
B-30-opx2-67	0.6-1.0	0.19	33.58	1.20	55.47	0.37	0.17	6.40	0.01	1.31	0.23	98.93
B-30-opx2-74	0.6-1.0	0.01	35.86	0.71	55.60	0.27	0.13	5.09	0.00	0.22	0.01	97.90
B-30-opx2-77	0.6-1.0	0.21	32.31	0.95	54.40	0.00	0.19	9.26	0.00	0.80	0.23	98.35
B-30-opx2-79	0.6-1.0	0.18	34.47	1.06	55.34	0.68	0.09	4.90	0.02	1.34	0.12	98.20
B-30-opx2-82	0.6-1.0	0.24	35.17	1.00	55.96	0.58	0.12	4.77	0.01	0.78	0.26	98.88
B-30-opx2-83	0.6-1.0	0.03	36.16	0.60	56.49	0.30	0.13	4.75	0.00	0.22	0.04	98.72
B-30-opx2-87	0.6-1.0	0.23	35.04	1.04	56.25	0.53	0.12	4.70	0.00	0.81	0.14	98.87
B-30-opx2-88	0.6-1.0	0.19	31.88	0.86	54.92	0.00	0.18	9.77	0.00	0.74	0.17	98.69
B-30-opx2-89	0.6-1.0	0.22	33.53	1.31	55.22	0.27	0.16	6.52	0.00	1.35	0.21	98.80

B-30. Olivine

Sample	S.F.(mm)	Na2O	MgO	Al2O3	SiO2	Cr2O3	MnO	FeO	K2O	CaO	TiO2	Total
B-30-oli2-2	0.6-1.0	0.02	48.63	0.05	40.30	0.00	0.11	10.77	0.00	0.06	0.02	99.96
B-30-oli2-3	0.6-1.0	0.02	49.66	0.02	40.12	0.07	0.13	9.06	0.00	0.10	0.02	99.20
B-30-oli2-4	0.6-1.0	0.02	50.35	0.04	40.74	0.09	0.13	8.79	0.00	0.10	0.02	100.27
B-30-oli2-6	0.6-1.0	0.02	49.98	0.03	40.54	0.11	0.17	8.66	0.02	0.10	0.00	99.64
B-30-oli2-8	0.6-1.0	0.01	48.79	0.03	40.05	0.05	0.15	10.59	0.00	0.08	0.03	99.76
B-30-oli2-9	0.6-1.0	0.03	48.34	0.02	39.78	0.03	0.10	10.82	0.00	0.08	0.03	99.24
B-30-oli2-10	0.6-1.0	0.02	49.04	0.02	39.98	0.01	0.10	10.33	0.01	0.07	0.04	99.62
B-30-oli2-11	0.6-1.0	0.02	49.95	0.06	40.66	0.11	0.09	9.27	0.01	0.11	0.01	100.29
B-30-oli2-13	0.6-1.0	0.03	49.96	0.04	40.65	0.11	0.12	8.65	0.01	0.08	0.01	99.66
B-30-oli2-14	0.6-1.0	0.01	44.42	0.00	38.88	0.04	0.17	16.12	0.00	0.01	0.05	99.70
B-30-oli2-15	0.6-1.0	0.02	46.92	0.03	39.46	0.01	0.17	12.74	0.00	0.07	0.04	99.46
B-30-oli2-19	0.6-1.0	0.00	48.05	0.04	39.85	0.05	0.15	11.72	0.00	0.08	0.04	99.97
B-30-oli2-22	0.6-1.0	0.01	49.86	0.04	40.01	0.09	0.08	9.37	0.00	0.08	0.03	99.58
B-30-oli2-24	0.6-1.0	0.02	49.57	0.04	40.19	0.08	0.11	8.97	0.00	0.09	0.03	99.11
B-30-oli2-25	0.6-1.0	0.02	50.09	0.03	40.11	0.07	0.10	9.12	0.01	0.11	0.03	99.68
B-30-oli2-28	0.6-1.0	0.04	49.32	0.06	39.89	0.17	0.07	9.95	0.00	0.09	0.01	99.60
B-30-oli2-29	0.6-1.0	0.03	49.42	0.04	39.46	0.06	0.15	9.42	0.01	0.09	0.05	98.74
B-30-oli2-31	0.6-1.0	0.02	49.96	0.05	39.92	0.04	0.15	9.08	0.00	0.09	0.03	99.34
B-30-oli2-32	0.6-1.0	0.02	50.35	0.03	40.02	0.13	0.12	8.36	0.00	0.09	0.03	99.15
B-30-oli2-33	0.6-1.0	0.02	50.18	0.05	39.14	0.06	0.11	8.59	0.00	0.10	0.00	98.26
B-30-oli2-34	0.6-1.0	0.02	49.85	0.03	39.32	0.04	0.11	9.13	0.00	0.07	0.02	98.61
B-30-oli2-35	0.6-1.0	0.02	50.62	0.02	40.16	0.06	0.10	8.06	0.00	0.02	0.01	99.07
B-30-oli2-36	0.6-1.0	0.03	50.37	0.04	39.65	0.10	0.10	8.65	0.00	0.11	0.03	99.07
B-30-oli2-38	0.6-1.0	0.02	50.18	0.02	39.41	0.10	0.09	8.68	0.00	0.09	0.08	98.68
B-30-oli2-42	0.6-1.0	0.02	49.54	0.06	39.08	0.04	0.13	9.68	0.01	0.10	0.02	98.67
B-30-oli2-47	0.6-1.0	0.01	50.58	0.03	39.71	0.03	0.08	8.16	0.00	0.03	0.03	98.65
B-30-oli2-48	0.6-1.0	0.04	48.07	0.03	38.87	0.07	0.14	11.02	0.00	0.12	0.02	98.37
B-30-oli2-51	0.6-1.0	0.01	50.64	0.02	39.14	0.07	0.13	7.98	0.00	0.03	0.04	98.06
B-30-oli2-55	0.6-1.0	0.02	50.37	0.02	39.17	0.05	0.13	8.84	0.01	0.08	0.05	98.73
B-30-oli2-56	0.6-1.0	0.02	41.47	0.00	37.54	0.01	0.23	20.37	0.00	0.03	0.05	99.71
B-30-oli2-57	0.6-1.0	0.03	50.01	0.03	39.28	0.04	0.10	9.15	0.00	0.09	0.04	98.78
B-30-oli2-58	0.6-1.0	0.01	49.96	0.02	38.98	0.02	0.07	9.00	0.00	0.03	0.02	98.09
B-30-oli2-60	0.6-1.0	0.02	49.65	0.04	39.04	0.09	0.09	9.56	0.00	0.08	0.03	98.59
B-30-oli2-64	0.6-1.0	0.03	46.03	0.00	37.77	0.01	0.16	14.23	0.00	0.05	0.02	98.29
B-30-oli2-68	0.6-1.0	0.03	50.37	0.01	39.77	0.12	0.12	8.10	0.00	0.08	0.03	98.63
B-30-oli2-69	0.6-1.0	0.01	50.03	0.04	39.61	0.08	0.15	8.88	0.00	0.09	0.03	98.90
B-30-oli2-70	0.6-1.0	0.03	50.24	0.05	39.59	0.07	0.14	8.77	0.01	0.09	0.01	99.02
B-30-oli2-72	0.6-1.0	0.03	49.99	0.03	39.61	0.13	0.09	9.00	0.01	0.09	0.01	98.99
B-30-oli2-73	0.6-1.0	0.01	50.27	0.03	39.28	0.11	0.09	8.47	0.00	0.09	0.00	98.34
B-30-oli2-75	0.6-1.0	0.02	50.77	0.02	39.61	0.10	0.09	8.52	0.01	0.08	0.04	99.27
B-30-oli2-76	0.6-1.0	0.03	50.05	0.06	39.35	0.14	0.10	8.49	0.00	0.09	0.05	98.35
B-30-oli2-78	0.6-1.0	0.02	50.78	0.04	39.19	0.11	0.11	8.29	0.01	0.08	0.04	98.66
B-30-oli2-80	0.6-1.0	0.02	49.66	0.04	39.08	0.02	0.07	9.40	0.01	0.08	0.03	98.41
B-30-oli2-81	0.6-1.0	0.03	49.74	0.03	39.38	0.07	0.11	9.51	0.01	0.09	0.04	99.00
B-30-oli2-85	0.6-1.0	0.02	50.15	0.01	39.68	0.11	0.12	8.82	0.00	0.08	0.04	99.03

Glinkers. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
glinkers-13	red	38.89	0.13	21.42	0.04	9.05	6.00	0.54	24.37	0.00	0.01	0.00	100.45

Glinkers. Chromite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
glinkers-1	0.04	0.55	0.00	10.90	58.60	0.33	12.31	-	0.32	17.93	0.13	0.09	101.21	2.23	15.93	101.43
glinkers-2	0.01	0.11	-	11.60	58.14	0.38	11.79	0.01	0.26	18.09	0.17	0.18	100.74	2.05	16.24	100.95
glinkers-3	0.06	1.91	-	8.81	55.85	0.42	12.61	-	0.23	20.50	0.17	0.17	100.74	4.58	16.38	101.20
glinkers-6	0.02	0.53	-	22.82	34.97	0.25	6.69	-	0.39	33.87	0.15	0.31	100.00	9.10	25.68	100.91
glinkers-7	0.03	0.19	-	10.44	59.54	0.32	12.59	-	0.29	17.25	0.04	0.08	100.78	2.42	15.08	101.03
glinkers-8	0.03	0.78	0.02	3.67	63.86	0.19	11.93	-	0.25	19.58	0.11	0.15	100.56	4.82	15.24	101.05
glinkers-9	0.05	3.94	-	4.60	49.10	0.58	9.55	-	0.38	30.59	0.15	0.16	99.11	9.64	21.92	100.07
glinkers-11	0.02	4.88	-	1.52	41.61	1.08	7.44	0.00	0.39	41.26	0.26	0.08	98.55	16.82	26.13	100.23
glinkers-12	0.03	0.47	0.02	10.93	58.88	0.27	11.82	0.02	0.34	17.90	0.04	0.08	100.80	1.65	16.42	100.96
glinkers-15	0.02	0.24	0.01	27.54	31.55	0.31	8.26	0.01	0.35	32.01	0.09	0.20	100.58	8.67	24.21	101.45
glinkers-16	0.05	3.40	0.06	6.74	52.09	0.40	11.02	0.01	0.23	25.69	0.19	0.01	99.89	6.61	19.74	100.55
glinkers-17	-	0.18	-	13.83	54.29	0.18	12.01	-	0.26	19.11	0.11	0.13	100.10	3.54	15.92	100.46
glinkers-20	0.01	1.31	-	9.52	47.30	0.41	10.02	-	0.40	30.50	0.22	0.13	99.82	12.23	19.50	101.04
glinkers-23	0.03	0.40	0.06	13.02	56.53	0.30	13.27	-	0.27	16.67	0.11	0.07	100.74	2.32	14.59	100.97
glinkers-24	0.05	3.89	-	4.40	48.70	0.54	9.37	0.01	0.23	31.60	0.25	0.07	99.11	10.45	22.19	100.16
glinkers-26	0.04	0.27	0.05	11.26	58.65	0.32	13.95	0.01	0.23	15.88	0.10	0.03	100.79	2.90	13.27	101.08
glinkers-27	0.02	5.05	0.04	1.47	41.45	1.09	7.69	0.00	0.38	41.32	0.22	0.14	98.89	16.96	26.06	100.59
glinkers-28	0.33	0.66	-	21.67	44.28	0.20	15.75	-	0.18	16.94	0.16	0.10	100.27	4.95	12.49	100.76
glinkers-31	0.08	2.78	-	7.27	54.41	0.23	12.00	0.03	0.28	22.62	0.21	0.02	99.93	5.85	17.36	100.51
glinkers-33	0.08	0.77	-	8.55	57.31	0.34	12.33	0.01	0.30	19.74	0.18	0.15	99.75	4.97	15.27	100.25
glinkers-34	0.02	5.14	0.03	3.27	49.45	0.45	10.45	0.03	0.36	30.35	0.32	0.08	99.93	10.02	21.33	100.94
glinkers-35	0.02	6.07	-	6.57	42.36	0.17	12.09	0.01	0.40	31.35	0.18	0.07	99.29	12.94	19.71	100.59
glinkers-38	0.02	0.52	0.02	8.16	58.10	0.28	11.26	0.00	0.25	20.83	0.04	0.04	99.52	4.61	16.68	99.98
glinkers-42	0.14	3.17	0.07	5.73	54.17	0.28	11.98	0.23	0.32	23.21	0.20	0.05	99.54	6.55	17.32	100.19
glinkers-49	0.16	1.74	0.02	10.80	53.80	0.25	13.13	0.00	0.25	19.77	0.19	0.14	100.25	4.79	15.46	100.73
glinkers-50	0.06	4.14	-	9.09	49.63	0.43	13.01	0.03	0.27	22.71	0.17	0.07	99.62	5.78	17.51	100.20
glinkers-55	0.03	1.94	0.00	8.61	54.77	0.39	11.81	0.00	0.28	21.48	0.17	0.07	99.56	4.78	17.18	100.04
glinkers-56	0.08	1.20	0.02	8.46	56.30	0.41	12.24	0.00	0.25	20.85	0.10	0.03	99.92	5.16	16.21	100.44
glinkers-57	0.03	4.81	-	7.39	47.05	0.26	12.35	0.02	0.37	27.64	0.22	0.09	100.22	9.98	18.67	101.22
glinkers-60	0.06	2.62	0.02	7.03	55.14	0.27	12.33	0.03	0.33	21.94	0.22	0.11	100.09	5.89	16.65	100.68
glinkers-62	0.07	2.51	-	8.28	54.47	0.27	12.46	0.02	0.34	21.74	0.23	0.05	100.46	5.62	16.69	101.02
glinkers-63	0.04	3.24	-	5.42	53.71	0.29	11.30	0.03	0.35	24.99	0.20	0.14	99.73	7.33	18.39	100.46
glinkers-64	0.05	3.58	0.03	4.55	52.75	0.47	10.37	0.00	0.29	27.75	0.25	0.09	100.17	8.00	20.56	100.97
glinkers-65	0.01	0.45	-	24.54	33.99	0.21	7.04	-	0.37	32.98	0.03	0.32	99.93	8.48	25.35	100.78
glinkers-66	0.03	6.51	0.04	3.24	46.46	0.37	10.04	0.01	0.36	31.90	0.29	0.07	99.31	9.93	22.97	100.31
glinkers-67	0.02	0.55	0.02	10.01	58.11	0.26	12.30	0.02	0.34	17.96	0.14	0.25	99.99	3.16	15.11	100.30
glinkers-68	0.04	1.92	-	8.30	54.65	0.30	11.53	0.01	0.28	22.42	0.10	0.07	99.62	5.43	17.53	100.16
glinkers-69	0.04	0.07	0.02	15.15	56.58	0.25	13.98	0.02	0.22	13.94	0.02	0.11	100.39	0.63	13.37	100.45
glinkers-70	0.05	2.74	-	5.29	58.54	0.48	12.32	0.00	0.21	19.97	0.12	0.17	99.90	3.43	16.88	100.24
glinkers-71	0.06	1.44	0.01	8.77	56.84	0.29	12.55	0.00	0.25	19.51	0.14	0.11	99.98	4.25	15.69	100.40
glinkers-72	0.28	1.93	0.03	11.83	50.96	0.30	14.39	0.01	0.25	19.09	0.22	0.02	99.32	5.77	13.90	99.90
glinkers-73	0.01	3.17	0.00	3.08	52.99	0.56	9.16	0.00	0.36	29.78	0.16	0.07	99.34	9.03	21.65	100.25
glinkers-74	0.01	0.38	0.04	13.05	56.89	0.33	13.19	0.00	0.23	15.67	0.08	0.15	100.02	1.36	14.44	100.16
glinkers-75	-	0.36	-	24.34	34.18	0.32	6.88	0.03	0.39	33.09	0.10	0.25	99.96	8.34	25.59	100.79
glinkers-76	0.05	3.78	-	7.18	48.55	0.60	11.16	0.01	0.29	27.46	0.19	0.09	99.36	8.39	19.91	100.20

Glinkers, Ilmenite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total	ilmenite	geikielite	hematite	Total
glinkers-1	0.02	52.09	0.28	0.21	0.66	0.11	10.35	0.01	0.29	34.67	0.14	-	99.05	7.29	28.11	99.78	56.00	37.46	6.54	100.00
glinkers-3	-	52.08	0.30	0.19	0.57	0.35	10.41	0.04	0.30	34.67	0.05	0.11	99.07	6.67	28.66	99.74	57.08	36.95	5.98	100.00
glinkers-4	-	52.36	0.20	0.17	0.64	0.18	10.33	0.03	0.28	35.01	0.03	-	99.22	6.87	28.83	99.91	57.28	36.58	6.14	100.00
glinkers-5	0.01	52.37	0.20	0.17	0.64	0.17	10.16	0.01	0.35	34.97	-	-	99.05	6.49	29.13	99.70	58.06	36.09	5.82	100.00
glinkers-7	0.01	52.56	0.27	0.25	0.77	0.28	10.55	0.02	0.36	34.22	-	0.04	99.32	6.03	28.80	99.92	57.25	37.36	5.39	100.00
glinkers-8	0.02	53.43	0.19	0.41	0.70	0.29	12.42	0.04	0.32	29.88	0.10	0.11	98.93	6.23	24.26	99.56	47.58	46.91	5.51	100.00
glinkers-9	0.01	53.98	0.17	0.33	0.94	0.06	12.13	0.02	0.34	31.07	0.10	-	99.16	4.81	26.74	99.64	52.92	42.79	4.29	100.00
glinkers-10	-	52.79	0.13	0.36	0.76	0.29	10.46	0.02	0.31	34.32	0.09	-	99.54	5.91	29.00	100.13	57.65	37.06	5.28	100.00
glinkers-11	0.02	53.45	0.17	0.30	0.99	0.10	11.51	0.01	0.33	32.05	0.07	0.06	99.05	5.11	27.46	99.56	54.63	40.80	4.57	100.00
glinkers-12	-	52.37	0.12	0.31	0.81	0.00	10.49	0.01	0.27	34.37	0.07	0.07	98.90	6.95	28.12	99.60	56.31	37.43	6.26	100.00
glinkers-13	-	54.31	0.13	0.23	0.87	-	12.00	0.02	0.39	31.28	0.09	0.09	99.60	4.54	27.20	100.06	53.73	42.23	4.03	100.00
glinkers-14	0.01	53.14	0.30	0.30	0.92	0.17	11.38	0.02	0.28	32.31	0.03	0.07	98.92	5.11	27.71	99.44	55.09	40.33	4.58	100.00
glinkers-15	0.03	53.51	0.26	0.22	1.41	0.14	12.81	0.03	0.27	30.14	0.10	0.03	98.96	3.27	25.39	99.49	50.20	45.11	4.69	100.00
glinkers-16	0.03	53.00	0.19	0.42	0.53	0.12	11.02	0.03	0.26	33.35	0.13	-	99.08	5.92	28.02	99.67	55.68	39.02	5.29	100.00
glinkers-17	-	52.39	0.28	0.24	0.83	0.10	10.46	0.00	0.31	34.65	0.05	0.10	99.41	6.85	28.49	100.10	56.74	37.12	6.14	100.00
glinkers-18	0.00	52.25	0.12	0.25	0.68	0.10	10.33	0.03	0.32	35.28	0.02	0.09	99.47	7.62	28.42	100.22	56.56	36.62	6.82	100.00
glinkers-19	0.01	53.46	0.18	0.29	0.88	0.01	11.64	0.01	0.32	32.18	0.01	0.01	99.00	5.35	27.19	99.56	53.91	41.14	4.95	100.00
glinkers-20	0.01	50.24	0.21	0.27	0.13	0.28	8.42	0.01	0.32	39.34	-	-	99.22	9.82	30.51	100.20	61.11	30.05	8.83	100.00
glinkers-21	0.03	53.10	0.09	0.58	0.74	0.20	11.63	0.03	0.27	32.45	0.22	-	99.33	6.12	26.94	99.94	53.43	41.11	5.46	100.00
glinkers-22	-	50.74	0.19	0.18	0.19	0.10	8.09	0.00	0.30	39.40	-	-	99.19	9.03	31.27	100.10	62.86	28.97	8.17	100.00
glinkers-23	0.00	52.94	0.14	0.42	0.52	0.19	10.91	0.01	0.28	33.35	0.05	-	98.80	5.62	28.29	99.36	56.29	38.68	5.03	100.00
glinkers-24	0.01	52.31	0.13	0.38	1.21	0.17	10.74	0.02	0.26	33.75	0.11	-	99.08	6.44	27.94	99.72	55.91	38.30	5.79	100.00
glinkers-25	0.01	52.56	0.25	0.25	0.61	0.08	10.38	0.01	0.27	35.11	0.12	0.05	99.70	7.10	28.72	100.41	56.97	36.69	6.33	100.00
glinkers-26	-	50.54	0.33	0.11	0.57	0.16	9.23	0.01	0.29	37.50	0.04	0.02	98.80	9.18	29.24	99.72	58.71	33.01	8.29	100.00
glinkers-27	0.02	54.80	0.12	0.37	1.53	-	12.20	0.00	0.34	30.81	0.11	0.01	100.32	3.99	27.23	100.72	53.64	42.83	3.53	100.00
glinkers-28	0.01	51.58	0.26	0.15	0.45	0.16	9.00	0.03	0.36	37.93	0.06	0.04	100.04	8.38	30.39	100.87	60.54	31.96	7.51	100.00
glinkers-30	0.01	52.48	0.22	0.12	0.75	0.11	10.27	0.03	0.32	34.58	0.01	-	98.88	6.23	28.96	99.51	57.84	36.54	5.61	100.00
glinkers-33	0.02	52.07	0.28	0.12	0.66	0.28	10.42	0.02	0.27	34.81	0.05	-	99.01	6.82	28.67	99.69	56.99	36.91	6.10	100.00
glinkers-34	0.02	52.82	0.10	0.39	0.52	0.11	10.98	0.02	0.31	33.49	0.11	-	98.85	6.33	27.78	99.49	55.33	38.98	5.69	100.00
glinkers-35	0.00	52.23	0.22	0.23	0.74	0.04	10.27	0.01	0.26	34.61	0.04	-	98.64	6.63	28.64	99.31	57.36	36.67	5.97	100.00
glinkers-36	-	54.68	0.11	0.53	1.43	0.17	13.81	0.02	0.32	27.89	0.13	0.04	99.15	3.84	24.43	99.54	48.12	48.47	3.41	100.00
glinkers-37	0.00	51.89	0.20	0.24	0.84	0.22	10.48	0.02	0.34	34.46	0.09	-	98.79	7.05	28.11	99.49	56.28	37.37	6.35	100.00
glinkers-38	0.03	52.65	0.18	0.25	0.72	0.39	10.68	0.00	0.38	34.24	-	-	99.52	6.09	28.76	100.13	56.91	37.67	5.42	100.00
glinkers-39	0.00	53.27	0.10	0.40	0.37	-	10.56	0.03	0.25	34.29	0.06	0.03	99.39	6.09	28.81	100.00	57.20	37.36	5.44	100.00
glinkers-40	0.01	54.85	0.09	0.27	1.22	0.16	13.11	0.03	0.22	28.77	0.08	-	98.82	3.10	25.98	99.13	51.21	46.04	2.75	100.00
glinkers-41	-	52.58	0.30	0.25	0.64	0.19	10.28	0.00	0.36	34.79	0.06	-	99.46	6.25	29.17	100.08	58.00	36.41	5.59	100.00
glinkers-42	0.01	53.46	0.25	0.36	1.64	0.14	12.32	0.02	0.31	30.62	0.16	-	99.30	5.00	26.13	99.80	51.90	43.63	4.47	100.00
glinkers-43	0.01	50.49	0.18	0.19	0.55	0.14	8.94	0.01	0.26	38.06	0.08	-	98.94	9.47	29.54	99.88	59.40	32.04	8.56	100.00
glinkers-44	0.06	54.08	0.12	0.37	0.91	-	12.01	0.01	0.29	31.93	0.07	-	99.88	5.45	27.04	100.42	53.13	42.05	4.82	100.00
glinkers-45	0.01	52.62	0.14	0.30	0.80	0.08	10.49	0.02	0.30	34.38	0.11	-	99.25	6.58	28.47	99.91	56.80	37.30	5.90	100.00
glinkers-46	0.02	53.16	0.17	0.81	1.47	-	12.15	0.01	0.38	30.74	0.08	0.02	99.01	5.43	25.86	99.55	51.77	43.33	4.89	100.00
glinkers-47	0.03	52.88	0.25	0.23	0.76	0.14	10.88	0.04	0.33	33.73	0.08	0.01	99.34	6.13	28.22	99.95	56.04	38.49	5.48	100.00
glinkers-48	0.01	53.21	0.33	0.27	0.85	0.08	11.31	0.00	0.26	33.23	0.08	0.05	99.70	6.04	27.80	100.30	54.86	39.78	5.36	100.00
glinkers-49	0.03	53.30	0.16	0.39	0.61	0.03	10.94	0.01	0.27	33.38	0.05	0.05	99.22	5.62	28.32	99.78	56.25	38.73	5.02	100.00
glinkers-50	0.01	52.44	0.21	0.21	0.70	0.21	10.32	0.02	0.32	34.74	0.10	0.08	99.36	6.59	28.81	100.02	57.43	36.66	5.91	100.00
glinkers-51	0.01	52.70	0.21	0.24	1.03	0.21	11.10	0.03	0.21	32.99	0.11	0.10	98.92	5.83	27.74	99.51	55.32	39.45	5.23	100.00
glinkers-52	0.01	52.44	0.23	0.22	0.67	0.13	10.31	0.03	0.29	34.96	0.05	0.03	99.36	6.80	28.84	100.05	57.36	36.55	6.09	100.00
glinkers-53	0.00	52.11	0.25	0.22	0.73	0.14	10.39	0.00	0.27	35.13	0.04	0.15	99.44	7.51	28.38	100.19	56.44	36.84	6.72	100.00
glinkers-54	0.03	52.99	0.14	0.37	0.54	0.26	10.81	0.02	0.30	33.99	0.07	-	99.51	6.00	28.59	100.11	56.55	38.11	5.34	100.00
glinkers-55	0.01	52.29	0.15	0.28	0.70	0.28	10.48	0.01	0.34	34.47	0.10	-	99.10	6.64	28.50	99.77	56.81	37.23	5.96	100.00
glinkers-56	0.03	52.99	0.13	0.50	0.20	0.28	10.79	0.04	0.26	34.54	0.09	0.08	99.94	6.62	28.58	100.60	56.27	37.86	5.87	100.00
glinkers-57	0.03	53.11	0.11	0.41	0.30	0.29	12.48	-	0.31	32.45	0.12	0.00	99.63	7.51	25.69	100.38	50.07	43.35	6.59	100.00
glinkers-58	0.02	52.24	0.23	0.28	0.81	0.16	10.37	0.02	0.34	34.86	0.03	-	99.34	6.93	28.62	100.04	57.01	36.78	6.21	100.00
glinkers-59	0.00	54.22	0.16	0.29	0.97	0.04	12.07	-	0.26	31.43	0.08	0.04	99.57	4.80	27.11	100.05	53.39	42.36	4.25	100.00
glinkers-60	0.02	53.55	0.20	0.28	1.32	0.07	11.89	0.04	0.24	31.08	0.15	0.04	98.87	4.70	26.84	99.34	53.53	42.25	4.22	100.00
glinkers-61	0.03	52.78	0.16	0.30	0.87	0.01	10.53	-	0.26	34.17	0.04	0.03	99.18	6.19	28.60	99.80	57.03	37.42	5.56	100.00
glinkers-62	0.01	53.67	0.17	0.37	0.81	0.10	11.77	-	0.36	32.29	0.12	0.03	99.60	5.72	27.15	100.27	53.56	41.37	5.07	100.00
glinkers-64	0.03	52.50	0.27	0.24	0.85	0.18	10.65	0.01	0.23	34.23	0.14	0.05	99.39	6.47	28.41	100.04	56.48	37.73	5.79	100.00
glinkers-66	0.03	52.47	0.16	0.33	0.72	0.14	10.53	0.03	0.24	34.63	0.09	0.03	99.41	6.85	28.46	100.09	56.58	37.29	6.13	100.00
glinkers-67	0.03	52.96	0.22	0.37	1.42	0.09	12.15	0.02	0.23	31.62	0.09	0.02	99.21	6.22	26.02	99.84	51.57	42.89	5.55	100.00
glinkers-69	0.02	54.12	0.17	0.39	1.12	0.01	12.21	0.00	0.31	30.72	0.12	0.03	99.22	4.47	26.69	99.67	52.89	43.12	3.99	100.00
glinkers-70	0.02	53.76	0.23	0.26	1.36	0.03	11.91	0.02	0.34	31.00	0.06	0.03	99.02	4.49	26.97	99.47	53.70	42.28	4.02	100.00
glinkers-71	0.03	52.66	0.29	0.32	1.08	0.21	11.12	0.04	0.27	33.14	0.06	0.02	99.24	5.90	27.83	99.83	55.32	39.41	5.27	100.00
glinkers-72	0.03	52.19	0.24	0.22	0.74	0.08	10.34	0.04	0.31	34.69	0.10	0.08	99.05	6.99	28.40	99.75	56.84	36.86	6.29	100.00
glinkers-73	-	51.76	0.24	0.21	0.73	0.24	9.92	0.03	0.35	35.38	0.06	-	98.92	7.03	29.06	99.62	58.23	35.44	6.33	100.00
glinkers-74	0.02	52.77	0.19	0.20	0.74	-	10.26	0.01	0.30	35.15	0.06	0.07	99.78	6.87	28.97	100.47	57.55	36.31	6.14	100.00
glinkers-75	0.02	52.99	0.14	0.33	0.53	0.09	10.98	0.03	0.27	33.60	0.17	0.03	99.17	6.35	27.88	99.81	55.42	38.90	5.68	100.00
glinkers-76	0.02	52.57	0.23	0.21	0.83	0.13	10.56	0.04	0.34	34.32	0.08	0.02	99.35	6.53	28.44	100.00	56.66	37.49	5.85	100.00
glinkers-78	0.03	53.33	0.15	0.42	2.58	0.17	12.53	0.03	0.32	30.26	0.19	0.10	100.21	5.44	25.46	100.76	50.68	44.45	4.87	100.00
glinkers-79	0.00	53.00	0.34	0.18	0.99	0.09	11.29	0.05	0.28	33.07	0.05	0.02	99.35	6.02	27.65	99.95	54.79	39.85	5.36	100.00
glinkers-81	0.03	52.26	0.27	0.21	0.75	0.09	10.34	0.01	0.30	35.19	0.06	0.20	99.69	7.45	28.49	100.44	56.67	36.67	6.67	100.00
glinkers-82	0.00	52.51	0.20	0.41	2.05	0.15	11.66	0.02	0.22	31.56	0.06	-	98.85	5.51	26.60	99.40	53.36	41.67	4.97	100.00
glinkers-83	0.01	52.21	0.22	0.27	0.79	0.09	10.53	0.03	0.34	34.92	0.09	-	99.50	7.57	28.11	100.26	55.90	37.33	6.77	100.00
glinkers-84	0.01	50.53	0.25	0.24	0.28	0.21	8.19	0.00	0.29	39.47	0.03	0.13	99.62	9.42	31.00	100.57	62.21	29.29	8.50	100.00
glinkers-85	0.03	54.18	0.18	0.32	0.99	0.19	12.31	0.02	0.31	31.14	0.08	0.00	99.75	4.71	26.90	100.22	52.79	43.05	4.16	100.00
glinkers-86	0.01	52.58	0.24	0.26	0.72	-	10.46	0.01	0.36	34.99	0.09	0.04	99.76	7.32	28.40	100.50	56.42	37.04	6.55	100.00
glinkers-87	-	53.98	0.26	0.27	1.03	0.01	11.32	0.02	0.30	32.50	0.03	0.11	100.03	5.16	27.86	100.54	54.93	40.49	4.58	100.00
glinkers-89	-	53.01	0.08	0.36	1.53	0.75	14.58	0.01	0.30	28.87	0.19	-	99.68	7.11	22.47	100.39	43.51	50.30	6.19	100.00
glinkers-91	0.01	54.29	0.11	0.00	1.55	0.16	12.75	0.01	0.22	29.80	0.19	0.03	99.21	4.20	26.02	99.63	51.38	44.88	3.73	100.00
glinkers-92	0.01	52.11	0.26	0.20	0.61	0.31	10.45	0.01	0.35	35.11	0.12	0.03	99.57	7.32	28.52	100.31	56.56	36.91	6.53	100.00
glinkers-93	-	54.27	0.10	0.31	0.81	0.35	12.29	0.03	0.34	31.25	0.09	0.00	99.85	4.62	27.09	100.31	53.05	42.88	4.07	100.00
glinkers-96	0.00	54.14	0.16	0.21	1.26	0.23	12.39	0.00	0.28	30.63	0.10	0.08	99.48	4.37	26.69	99.92	52.61	43.51	3.88	100.00
glinkers-97	0.01	53.63	0.17	0.40	0.60	0.10	11.09	0.02	0.30	32.92	0.14	-	99.39	5.07	28.36	99.89	56.26	39.21	4.53	100.00
glinkers-98	0.04	54.21	0.14	0.26	1.06	0.12	12.01	0.01	0.29	31.57	0.08	0.01	99.81	4.68	27.36	100.27	53.79	42.07	4.14	100.00
glinkers-99	0.02	52.24	0.23	0.23	0.83	0.28	10.44	0.00	0.30	34.82	0.13	0.02	99.56	6.87	28.64	100.25	56.90	36.96	6.14	100.00
glinkers-100	0.03	53.55	0.10	0.42	0.88	0.21	11.49	0.00	0.32	32.55	0.10	-	99.66	5.35	27.73	100.20	54.79	40.46	4.75	100.00

Note: all analyses on mineral cores.

Glinkers. Olivine

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
glinkers-1	40.60	0.02	-	0.06	49.30	0.08	0.10	9.52	0.32	0.01	0.02	100.03
glinkers-2	40.52	0.01	0.04	0.09	49.16	0.09	0.14	9.29	0.40	0.02	-	99.77
glinkers-3	39.67	0.02	-	-	45.40	-	0.19	14.85	0.08	-	0.01	100.21
glinkers-4	41.00	-	-	0.04	49.95	0.08	0.07	8.57	0.39	0.02	-	100.10
glinkers-5	40.75	0.03	0.01	0.29	49.23	0.16	0.13	8.99	0.36	0.03	-	99.98
glinkers-6	40.54	-	-	0.12	49.30	0.09	0.07	8.96	0.40	0.02	0.02	99.52
glinkers-7	40.78	0.00	-	0.12	49.37	0.12	0.14	9.12	0.33	0.00	-	99.99
glinkers-8	40.57	-	-	0.05	50.08	0.05	0.17	8.86	0.39	0.01	-	100.20
glinkers-9	40.68	0.01	-	0.02	49.47	0.06	0.11	9.12	0.38	-	-	99.86
glinkers-10	40.58	0.03	0.02	0.05	48.24	-	0.17	11.40	0.38	0.02	0.00	100.89
glinkers-11	40.72	0.02	-	0.09	49.23	0.07	0.10	9.38	0.32	0.01	-	99.95
glinkers-12	40.68	0.02	-	0.07	49.30	0.15	0.11	8.90	0.39	0.01	-	99.62
glinkers-13	40.38	0.04	-	0.07	48.65	0.08	0.09	9.98	0.34	0.01	-	99.62
glinkers-14	40.46	0.01	-	0.08	48.78	0.05	0.09	9.95	0.42	-	-	99.84
glinkers-15	40.68	0.01	-	0.10	49.21	0.09	0.11	9.69	0.37	0.01	-	100.27
glinkers-16	39.46	0.02	-	0.04	45.22	0.04	0.20	14.66	0.14	0.00	0.03	99.81
glinkers-17	40.44	0.03	-	0.10	48.72	0.11	0.12	9.77	0.29	0.02	-	99.61
glinkers-18	40.01	0.02	-	0.03	46.34	0.02	0.14	13.18	0.26	0.01	-	100.00
glinkers-19	39.73	0.02	-	0.02	45.36	0.02	0.17	14.53	0.07	-	0.00	99.92
glinkers-20	40.30	0.04	-	0.05	48.37	0.04	0.12	10.72	0.27	0.01	-	99.93
glinkers-21	40.03	0.04	-	0.01	47.50	0.03	0.13	12.00	0.32	0.01	-	100.07
glinkers-22	39.73	0.06	-	0.02	45.47	0.01	0.22	14.88	0.01	0.02	-	100.40
glinkers-23	40.34	0.04	-	0.02	46.86	0.08	0.16	12.90	0.23	-	-	100.64
glinkers-24	39.61	0.03	-	0.02	45.02	-	0.15	14.89	0.00	0.00	-	99.73
glinkers-25	39.79	0.01	-	0.02	46.52	0.08	0.13	13.05	0.15	0.00	0.03	99.80

McLean. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
gar-1	purple	40.71	0.50	15.72	9.15	19.32	6.90	0.25	6.55	0.08	0.03	-	99.22	Cr-pyrope
gar-2	purple	41.16	0.50	16.99	8.13	19.92	6.33	0.23	6.79	0.02	0.02	-	100.10	Cr-pyrope
gar-3	purple	40.90	0.10	17.08	8.03	19.43	6.70	0.24	6.58	0.02	-	-	99.08	Cr-pyrope
gar-4	purple	41.40	0.05	20.22	4.96	19.61	5.31	0.55	7.80	-	0.02	0.00	99.94	Cr-pyrope
gar-5	purple	41.09	0.07	19.97	5.28	19.51	5.33	0.48	7.89	0.03	0.02	-	99.67	Cr-pyrope
gar-6	purple	40.83	0.46	15.53	9.71	19.26	6.94	0.26	6.68	-	0.03	0.00	99.71	Cr-pyrope
gar-7	purple	40.56	0.53	15.94	9.01	19.27	6.88	0.26	6.52	0.03	0.02	0.00	99.04	Cr-pyrope
gar-8	purple	41.48	0.04	20.11	4.60	19.81	5.19	0.46	7.94	-	0.02	-	99.65	Cr-pyrope
gar-9	purple	41.45	0.59	19.91	3.44	20.34	4.98	0.32	8.55	-	0.05	-	99.63	Cr-pyrope
gar-10	purple	41.43	0.04	20.07	4.94	19.56	5.35	0.47	7.62	0.01	0.03	0.00	99.52	Cr-pyrope
gar-11	purple	40.52	0.32	14.07	11.91	20.45	5.27	0.24	6.02	-	0.01	-	98.81	Cr-pyrope
gar-12	purple	41.36	0.20	17.99	6.68	19.44	6.35	0.34	6.79	0.05	0.01	0.01	99.21	Cr-pyrope
gar-13	purple	40.72	0.53	15.87	9.32	19.37	6.95	0.23	6.72	0.03	0.02	0.00	99.77	Cr-pyrope
gar-14	purple	41.80	0.17	21.00	3.27	20.96	4.93	0.30	7.15	0.04	0.02	-	99.62	Cr-pyrope
gar-15	purple	41.39	0.47	19.85	3.87	20.14	5.52	0.30	8.06	-	0.03	-	99.62	Cr-pyrope
gar-16	purple	40.91	0.49	15.81	9.13	19.36	6.99	0.25	6.69	0.04	0.03	-	99.70	Cr-pyrope
gar-17	purple	40.79	0.54	15.97	9.21	19.48	6.75	0.26	6.61	0.03	0.02	-	99.65	Cr-pyrope
gar-18	purple	41.33	0.23	18.22	6.81	19.92	6.45	0.39	6.78	0.06	0.01	0.00	100.20	Cr-pyrope

McLean. Chromite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
oxi-1	0.01	0.10	0.02	11.38	57.66	0.29	12.42	-	0.16	17.36	0.06	0.07	99.16	2.56	15.05	99.78
oxi-2	-	0.04	0.01	13.01	54.93	0.33	9.98	-	0.25	20.67	0.07	0.13	99.08	2.04	18.83	99.63
oxi-3	-	0.19	-	16.76	52.35	0.26	11.62	-	0.23	18.07	0.05	0.16	99.33	1.17	17.01	99.81
oxi-4	-	0.14	-	17.40	52.52	0.37	12.25	-	0.31	16.36	0.08	0.13	99.19	0.25	16.14	99.59
oxi-5	-	-	-	9.48	59.02	0.29	11.01	-	0.14	19.48	0.08	0.11	99.26	2.99	16.79	99.91
oxi-6	0.13	0.70	-	15.69	48.49	0.24	13.23	-	0.23	20.90	0.21	0.03	99.52	6.47	15.08	100.50
oxi-7	-	0.97	-	12.75	54.96	0.43	12.05	-	0.28	18.25	0.09	0.11	99.56	1.70	16.72	100.06
oxi-8	-	0.19	-	16.75	50.41	0.26	11.38	-	0.34	19.71	0.08	0.13	98.91	2.84	17.15	99.53
oxi-9	0.01	0.13	-	13.70	57.59	0.23	13.11	-	0.06	14.74	0.08	0.12	99.41	0.43	14.35	99.81
oxi-10	0.21	1.76	0.05	10.03	51.95	0.31	12.55	-	0.22	22.21	0.20	0.07	99.26	6.53	16.34	100.21
oxi-11	0.01	0.24	0.03	11.32	59.52	0.40	12.49	0.02	0.18	15.34	0.09	0.08	99.36	0.18	15.18	99.73
oxi-12	-	-	-	11.64	58.42	0.25	11.80	-	0.19	17.54	0.08	0.13	99.69	1.81	15.91	100.23
oxi-13	0.19	2.06	-	8.65	53.28	0.36	12.43	0.01	0.30	21.83	0.18	0.06	99.04	6.00	16.43	99.95
oxi-14	0.01	0.32	0.02	14.34	54.95	0.32	11.90	-	0.37	17.11	0.09	0.16	99.23	0.98	16.23	99.69
oxi-15	0.21	2.14	0.06	8.65	53.14	0.32	12.50	-	0.17	22.09	0.18	0.02	99.16	6.05	16.64	100.09
oxi-16	0.04	0.29	-	12.00	54.80	0.36	8.76	-	0.36	22.82	0.07	0.16	99.33	2.25	20.80	99.89
oxi-17	0.10	2.33	-	18.77	42.73	0.29	13.43	-	0.18	22.13	0.20	0.03	99.88	5.79	16.92	100.77
oxi-18	0.01	0.47	-	11.81	55.98	0.26	12.25	-	0.20	18.63	0.13	0.09	99.48	3.34	15.63	100.16
oxi-19	-	0.05	-	7.17	59.61	0.15	10.42	-	0.21	21.05	0.11	0.11	98.53	4.67	16.85	99.35
oxi-20	0.02	0.71	0.08	17.68	43.12	0.23	10.70	-	0.19	26.86	0.15	0.13	99.56	8.47	19.24	100.71
oxi-21	0.03	0.88	0.02	8.50	53.71	0.41	9.54	0.01	0.36	25.82	0.14	0.12	99.23	6.84	19.67	100.23
oxi-22	-	1.03	0.01	10.00	49.28	0.40	9.48	-	0.27	28.08	0.19	0.13	98.58	9.06	19.93	99.78
oxi-23	0.06	3.09	-	7.76	51.85	0.46	11.03	-	0.24	24.24	0.15	0.12	98.70	5.51	19.28	99.55
oxi-24	0.22	1.93	-	10.15	54.14	0.32	13.21	-	0.11	19.24	0.20	0.05	99.24	4.08	15.57	99.98
oxi-25	0.03	0.55	-	20.10	45.44	0.17	12.72	0.01	0.33	20.03	0.13	0.14	99.29	4.54	15.95	100.10
oxi-26	0.02	0.03	0.03	14.79	55.65	0.35	12.53	-	0.19	15.11	0.08	0.15	98.55	-	15.11	98.92
oxi-27	0.03	1.00	-	7.64	55.99	0.30	10.48	-	0.26	23.46	0.13	0.08	99.06	5.96	18.10	99.97
oxi-28	0.02	0.12	-	12.47	55.66	0.27	11.50	-	0.18	18.86	0.08	0.12	98.94	2.68	16.45	99.55
oxi-29	-	2.64	0.05	2.22	55.05	0.77	8.88	-	0.52	28.55	0.23	0.11	98.75	7.89	21.45	99.82
oxi-30	-	0.29	0.01	16.52	52.05	0.12	11.40	-	0.41	18.95	0.06	0.12	99.57	2.02	17.13	100.13
oxi-31	0.29	0.30	0.01	23.39	37.05	0.20	14.49	0.01	0.17	23.72	0.20	0.02	99.53	10.47	14.30	100.90
oxi-32	-	0.76	-	18.13	47.29	0.29	12.12	-	0.30	20.56	0.17	0.10	99.37	4.02	16.94	100.11
oxi-33	-	0.02	-	17.31	52.78	0.37	13.35	-	0.27	15.30	0.07	0.12	99.23	0.98	14.41	99.69
oxi-34	-	-	0.01	18.37	52.62	0.29	13.22	-	0.12	14.53	0.08	0.16	99.03	-	14.53	99.40
oxi-35	-	0.01	0.01	9.08	61.50	0.23	11.10	-	0.28	16.74	0.10	0.16	98.84	0.67	16.14	99.28
oxi-36	-	0.16	0.03	16.38	54.22	0.29	12.09	-	0.21	16.74	0.08	0.15	99.97	0.29	16.48	100.38
oxi-37	0.09	2.41	0.02	15.17	45.73	0.29	12.89	-	0.18	22.96	0.20	0.05	99.69	6.42	17.18	100.63
oxi-38	0.02	0.08	-	6.34	60.10	0.15	10.34	-	0.33	21.55	0.10	0.08	98.78	5.19	16.88	99.61
oxi-39	0.01	0.20	0.02	13.95	55.33	0.22	11.19	-	0.32	18.60	0.05	0.14	99.68	1.50	17.25	100.18
oxi-40	0.33	0.42	-	18.36	44.29	0.25	13.70	-	0.12	22.13	0.17	0.04	99.49	7.97	14.96	100.61
oxi-41	-	0.21	0.03	12.97	56.80	0.24	12.54	-	0.28	16.08	0.12	0.09	99.00	1.35	14.87	99.49
oxi-42	0.01	0.33	-	14.22	51.08	0.18	10.87	-	0.34	21.80	0.13	0.11	98.74	4.78	17.50	99.56
oxi-43	-	0.08	-	13.66	54.37	0.27	11.22	-	0.20	19.49	0.09	0.13	99.16	2.72	17.04	99.78
oxi-44	-	0.04	0.01	12.14	55.40	0.25	11.84	0.01	0.25	19.41	0.13	0.14	99.26	4.08	15.74	100.03
oxi-45	0.22	0.88	-	20.04	43.86	0.24	14.25	-	0.21	19.43	0.20	0.03	99.02	5.65	14.35	99.93
oxi-46	0.23	1.37	0.02	13.30	49.73	0.28	13.63	0.01	0.19	20.19	0.19	-	98.81	6.05	14.75	99.74
oxi-47	0.14	0.26	0.05	10.77	51.17	0.23	12.10	0.01	0.10	23.46	0.16	0.07	98.22	8.92	15.43	99.42
oxi-48	0.03	0.98	0.05	9.52	56.16	0.26	11.90	-	0.36	19.57	0.15	0.09	98.84	3.84	16.12	99.55
oxi-49	0.22	1.42	-	14.76	47.48	0.34	13.98	-	0.16	20.55	0.24	0.05	98.88	6.69	14.53	99.87
oxi-50	-	0.30	0.05	15.71	51.10	0.05	10.77	0.01	0.21	20.95	0.14	0.12	99.05	3.42	17.88	99.76
oxi-51	-	1.11	0.01	15.02	53.95	0.30	13.04	-	0.28	15.40	0.11	0.12	98.99	0.15	15.27	99.36
oxi-52	0.03	1.24	-	9.60	55.03	0.40	11.87	-	0.19	21.14	0.16	0.09	99.44	4.84	16.79	100.24
oxi-53	0.02	0.13	0.01	12.69	54.49	0.28	10.49	-	0.17	20.87	0.12	0.15	99.06	3.12	18.06	99.73
oxi-54	0.33	0.78	-	14.44	37.77	0.25	13.33	-	0.23	30.53	0.29	-	97.69	17.70	14.60	99.71
oxi-55	0.20	1.07	-	10.50	53.93	0.41	12.69	-	0.08	20.24	0.16	0.04	99.01	4.96	15.78	99.82
oxi-56	0.01	0.04	0.04	12.68	58.25	0.18	12.07	-	0.20	16.04	0.07	0.16	99.37	0.61	15.49	99.80

McLean. Chromite. continued.

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
oxi-57	0.01	0.10	-	14.91	55.08	0.24	12.06	-	0.35	16.17	0.04	0.12	98.72	0.56	15.67	99.14
oxi-58	-	0.13	-	14.11	56.37	0.28	12.33	-	0.22	15.72	0.09	0.12	99.01	0.38	15.38	99.41
oxi-59	0.04	0.06	-	10.94	57.89	0.29	11.62	-	0.32	18.24	0.07	0.12	99.21	2.50	15.99	99.83
oxi-60	0.01	0.27	0.01	11.87	49.62	0.32	8.77	-	0.37	27.54	0.10	0.21	98.77	7.85	20.48	99.87
oxi-61	0.05	1.11	-	6.04	54.51	0.43	10.97	-	0.23	25.12	0.16	0.10	98.43	8.75	17.24	99.60
oxi-62	0.20	1.98	0.07	10.16	53.74	0.29	13.15	-	0.19	19.41	0.21	0.04	99.14	4.26	15.58	99.86
oxi-63	0.10	0.31	-	9.54	58.76	0.29	12.37	-	0.21	17.79	0.12	0.06	99.21	3.06	15.04	99.85
oxi-64	0.14	1.74	-	8.94	55.76	0.31	12.95	-	0.25	19.19	0.16	0.05	99.18	4.25	15.36	99.92
oxi-65	0.02	1.39	-	11.18	55.05	0.45	12.07	-	0.23	18.99	0.14	0.18	99.37	2.47	16.77	99.95
oxi-66	-	1.53	0.01	9.43	43.56	0.31	9.99	-	0.33	32.91	0.26	0.10	98.37	14.80	19.60	100.11
oxi-67	0.02	0.13	0.02	13.92	54.93	0.12	11.54	-	0.43	18.34	0.06	0.11	99.29	2.27	16.29	99.85
oxi-68	0.05	1.69	-	8.95	55.74	0.37	12.23	-	0.23	19.95	0.16	0.05	99.11	3.96	16.39	99.82
oxi-69	0.01	0.35	0.02	13.33	54.67	0.29	10.31	-	0.50	19.71	0.03	0.13	98.99	1.49	18.37	99.50
oxi-70	0.01	0.84	0.05	7.10	53.20	0.36	8.66	0.02	0.40	28.12	0.10	0.18	98.72	8.48	20.49	99.90
oxi-72	-	0.04	0.03	17.63	52.79	0.23	12.37	-	0.21	16.12	0.07	0.17	99.31	0.34	15.82	99.69
oxi-73	-	0.14	0.02	13.88	54.42	0.25	10.89	-	0.38	19.42	0.08	0.12	99.24	2.15	17.48	99.82
oxi-74	-	0.16	-	11.62	53.45	0.35	8.29	-	0.15	25.36	0.07	0.16	99.27	4.29	21.50	100.03
oxi-75	-	1.40	0.01	11.09	53.71	0.36	9.08	0.01	0.39	23.60	0.09	0.13	99.56	2.71	21.16	100.14
oxi-76	-	0.10	0.03	11.30	56.43	0.17	10.96	-	0.34	19.95	0.10	0.11	99.15	3.47	16.83	99.83
oxi-77	0.01	0.03	0.03	8.30	62.43	0.26	11.33	-	0.21	16.86	0.07	0.11	99.28	0.90	16.05	99.73
oxi-78	0.01	0.29	-	14.06	54.33	0.20	11.28	-	0.19	19.50	0.09	0.13	99.72	2.45	17.29	100.33
oxi-79	0.01	0.15	-	11.38	56.35	0.21	10.95	-	0.37	19.86	0.08	0.09	99.10	3.24	16.94	99.77
oxi-80	0.03	0.20	-	12.42	56.75	0.20	11.03	0.01	0.16	18.42	0.04	0.12	99.04	1.36	17.20	99.52
oxi-81	0.07	0.70	-	8.93	58.35	0.34	12.14	0.01	0.10	18.41	0.15	0.05	98.92	3.05	15.67	99.55
oxi-82	-	0.32	-	12.50	54.27	0.13	11.03	-	0.27	20.74	0.06	0.07	99.06	4.00	17.14	99.79
oxi-83	0.02	0.35	-	12.25	56.27	0.26	12.83	-	0.26	17.23	0.13	0.10	99.36	2.92	14.60	99.99
oxi-84	0.02	0.72	0.06	8.10	62.00	0.30	12.15	-	0.27	15.50	0.09	0.09	98.93	0.22	15.30	99.31
oxi-85	0.06	3.94	0.01	6.09	50.13	0.56	10.36	-	0.38	27.66	0.20	0.10	99.23	7.42	20.98	100.23
oxi-86	0.02	0.26	-	11.00	55.74	0.19	11.31	-	0.20	20.37	0.10	0.12	98.97	4.30	16.50	99.73
oxi-87	-	1.01	-	10.02	52.46	0.28	9.61	0.02	0.47	25.50	0.13	0.13	99.31	6.60	19.56	100.30
oxi-88	-	0.10	-	11.31	56.71	0.15	10.88	0.01	0.31	19.76	0.08	0.13	99.10	3.19	16.89	99.76
oxi-89	0.03	0.21	0.04	12.85	55.51	0.25	11.26	-	0.23	19.22	0.10	0.17	99.52	2.42	17.05	100.10
oxi-90	-	0.43	-	12.31	54.07	0.35	9.64	-	0.36	21.93	0.08	0.11	98.95	2.72	19.48	99.55
oxi-91	-	0.08	0.01	8.22	61.75	0.21	10.64	-	0.11	18.11	0.04	0.12	98.94	1.19	17.04	99.41
oxi-92	0.03	1.55	0.01	9.00	57.65	0.17	13.27	-	0.07	17.64	0.12	0.04	99.21	3.38	14.60	99.89
oxi-93	-	-	0.01	8.12	59.70	0.19	10.72	-	0.20	20.74	0.05	0.13	99.50	4.24	16.92	100.28
oxi-94	0.01	1.71	0.02	3.24	55.47	0.70	8.39	-	0.43	28.78	0.11	0.08	98.63	7.98	21.60	99.73
oxi-95	0.01	0.09	0.02	13.23	57.14	0.24	11.80	-	0.26	16.86	0.09	0.12	99.51	0.83	16.11	99.95
oxi-96	0.02	0.46	-	6.33	52.97	0.35	6.84	-	0.31	31.32	0.15	0.17	98.62	9.47	22.80	99.87
oxi-97	0.05	1.50	-	9.30	54.28	0.39	11.03	-	0.33	22.03	0.14	0.10	98.82	4.55	17.94	99.60
oxi-98	0.01	0.19	0.03	11.57	54.00	0.31	10.57	-	0.32	21.83	0.11	0.13	98.72	4.64	17.66	99.53
oxi-99	0.03	0.05	0.02	10.75	60.03	0.22	11.59	-	0.16	16.54	0.04	0.13	99.21	0.56	16.04	99.62
oxi-100	0.02	0.12	0.01	11.04	56.70	0.11	11.13	-	0.27	20.23	0.08	0.13	99.50	3.98	16.65	100.24
oxi-101	-	0.03	-	15.44	55.22	0.20	12.55	-	0.24	15.76	0.05	0.13	99.27	0.70	15.13	99.70
oxi-102	0.02	0.08	0.03	14.29	56.00	0.24	11.59	0.01	0.31	17.34	0.09	0.16	99.81	0.82	16.61	100.24
oxi-103	-	0.17	-	16.05	51.53	0.20	10.62	-	0.33	20.63	0.10	0.21	99.46	2.71	18.20	100.10
oxi-104	-	0.30	-	3.12	60.31	0.37	8.16	-	0.22	26.32	0.11	0.11	98.70	6.69	20.30	99.69
oxi-105	0.01	0.06	0.02	14.39	54.98	0.33	11.12	-	0.26	18.29	0.10	0.04	99.25	0.96	17.43	99.69
oxi-106	0.02	0.20	0.01	13.14	56.98	0.26	11.52	-	0.28	16.82	0.06	0.15	99.08	0.36	16.50	99.48
oxi-107	0.03	-	-	9.21	62.37	0.29	11.32	-	0.32	16.34	0.05	0.08	99.65	0.08	16.27	100.02
oxi-108	0.01	-	-	9.43	59.87	0.26	11.03	-	0.29	18.38	0.10	0.08	99.39	2.08	16.50	99.65
oxi-109	0.23	0.03	-	15.29	45.31	0.10	18.17	-	0.16	18.33	0.22	0.03	97.55	13.36	6.30	99.21
oxi-110	0.03	2.67	-	5.86	57.14	0.37	11.52	0.02	0.22	21.53	0.18	0.08	99.31	4.08	17.86	100.04
oxi-112	0.03	0.25	0.01	12.40	57.39	0.19	10.83	0.01	0.25	18.13	0.08	0.14	99.36	0.72	17.48	99.78
oxi-113	-	0.59	0.03	18.12	47.79	0.12	11.60	-	0.41	21.20	0.16	0.12	99.78	4.26	17.37	100.56

McLean. Chromite. continued

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
oxi-114	-	0.08	-	13.63	55.14	0.22	11.16	-	0.35	18.74	0.05	0.06	99.07	1.97	16.97	99.63
oxi-115	0.03	0.09	0.03	13.36	56.17	0.39	11.76	-	0.21	17.62	0.07	0.14	99.51	1.22	16.52	99.99
oxi-116	0.05	0.20	-	12.35	56.97	0.28	10.88	0.01	0.15	18.44	0.07	0.12	99.16	0.95	17.59	99.62
oxi-117	-	0.22	0.04	12.96	57.29	0.25	11.64	0.01	0.26	17.15	0.04	0.13	99.63	0.71	16.51	100.05
oxi-118	0.01	0.28	-	3.06	60.23	0.25	8.22	-	0.31	26.08	0.08	0.14	98.34	6.97	19.8[illegible]	99.35
oxi-119	-	0.07	-	7.25	62.43	0.23	10.76	-	0.24	18.11	0.07	0.15	98.96	1.74	16.5[illegible]	99.49
oxi-120	-	0.06	0.04	11.13	58.20	0.23	11.26	-	0.19	18.40	0.11	0.14	99.39	2.01	16.59	99.96
oxi-121	0.02	0.14	-	13.58	55.46	0.38	11.43	-	0.20	18.32	0.06	0.16	99.39	1.45	17.01	99.89
oxi-122	0.03	0.25	0.03	15.88	51.86	0.14	11.30	-	0.41	19.63	0.13	0.10	99.40	2.76	17.15	100.04
oxi-123	-	0.07	-	14.40	55.18	0.12	11.31	-	0.28	18.35	0.07	0.06	99.48	1.65	16.87	100.00
oxi-124	0.01	0.56	0.01	7.61	54.11	0.33	9.63	-	0.19	26.16	0.14	0.14	98.57	8.06	18.91	99.69
oxi-125	0.03	2.59	0.04	5.76	56.85	0.40	11.47	-	0.38	21.58	0.17	0.12	99.11	4.31	17.70	99.83
oxi-126	0.03	0.33	0.02	11.82	55.13	0.28	9.96	-	0.41	21.51	0.07	0.12	99.33	2.95	18.85	99.98
oxi-127	-	0.51	0.03	13.84	54.02	0.31	10.04	-	0.24	20.76	0.09	0.13	99.62	1.47	19.44	100.12
oxi-128	-	0.07	-	15.15	55.63	0.36	13.04	-	0.19	14.63	0.06	0.11	98.87	0.09	14.55	99.25
oxi-129	-	2.23	-	1.61	51.23	0.56	6.56	-	0.37	35.67	0.14	0.11	98.24	12.64	24.29	99.75
oxi-130	0.21	0.02	0.02	15.35	44.89	0.11	18.26	-	0.37	18.72	0.21	0.02	97.87	14.03	6.10	99.59
oxi-131	-	0.27	0.01	10.80	54.27	0.25	9.92	-	0.29	23.31	0.11	0.15	99.04	5.23	18.60	99.91
oxi-132	0.02	0.13	0.03	17.06	47.17	0.24	11.53	-	0.34	22.81	0.15	0.16	99.31	6.42	17.03	100.29
oxi-134	-	0.13	0.01	10.95	56.41	0.09	10.89	0.01	0.39	20.56	0.08	0.09	99.28	4.19	16.79	100.02
oxi-135	0.02	0.13	0.02	10.26	57.93	0.28	11.15	-	0.06	19.57	0.05	0.08	99.20	2.90	16.96	99.84
oxi-137	0.01	0.33	0.02	12.26	54.02	0.16	10.86	0.01	0.32	20.79	0.10	0.09	98.62	3.99	17.20	99.37
oxi-138	0.01	0.06	0.06	12.66	55.34	0.30	11.52	-	0.29	19.02	0.06	0.15	99.10	2.88	16.43	99.75
oxi-139	0.01	0.12	-	10.70	57.67	0.22	10.97	-	0.41	19.31	0.11	0.14	99.31	2.86	16.74	99.95
oxi-141	-	0.20	-	15.06	55.58	0.25	12.73	-	0.22	15.40	0.07	0.11	99.25	0.40	15.04	99.66
oxi-142	0.01	2.14	-	0.71	57.98	0.63	7.71	-	0.40	29.39	0.15	0.11	98.94	7.60	22.55	99.99
oxi-143	0.25	1.38	0.09	9.02	56.96	0.25	12.78	-	0.12	18.80	0.15	0.04	99.51	3.44	15.70	100.19
oxi-144	0.02	0.63	-	12.29	55.26	0.24	9.85	-	0.32	21.09	0.08	0.12	99.56	1.87	19.41	100.09
oxi-145	0.01	0.02	-	7.71	61.40	0.26	10.47	-	0.30	19.44	0.07	0.08	99.40	2.45	17.23	100.00
oxi-146	0.01	-	-	16.64	53.35	0.29	12.95	0.01	0.11	15.97	0.08	0.13	99.18	1.18	14.91	99.65
oxi-147	-	0.02	-	11.10	58.16	0.23	11.29	-	0.24	18.23	0.10	0.14	99.16	2.10	16.34	99.72
oxi-148	0.05	0.79	-	8.16	62.72	0.11	12.49	0.01	0.06	15.79	0.07	0.07	99.96	0.75	15.11	100.39
oxi-149	0.03	1.10	-	11.54	53.82	0.24	11.22	-	0.21	21.01	0.14	0.14	99.14	3.84	17.55	99.83
oxi-150	0.04	0.12	-	15.38	[illegible]93	0.23	11.63	-	0.21	17.84	0.06	0.12	99.11	1.27	16.70	99.59
oxi-151	-	0.26	-	13.42	53.08	0.20	10.63	0.01	0.41	20.83	0.09	0.16	98.76	3.60	17.59	99.45
oxi-152	-	0.45	0.01	6.24	53.23	0.40	6.86	-	0.50	31.03	0.11	0.13	98.65	9.26	22.70	99.89
oxi-154	0.02	-	0.01	15.64	55.37	0.28	12.75	-	0.20	15.93	0.10	0.14	100.08	0.77	15.24	100.52

McLean, Ilmenite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total	ilmenite	geikielite	hematite	Total
oxi-71	-	52.86	0.12	0.38	0.51	-	11.21	0.03	0.28	33.58	0.10	-	99.41	7.01	27.27	99.78	54.11	39.63	6.26	100.00
oxi-111	0.03	54.31	0.09	0.07	2.27	-	13.01	-	0.25	29.01	0.19	0.02	99.56	4.08	25.34	99.66	50.31	46.04	3.65	100.00
oxi-133	0.02	53.84	0.09	0.45	3.08	-	14.03	0.01	0.30	27.32	0.17	0.02	99.64	4.75	23.04	99.81	45.91	49.82	4.27	100.00
oxi-140	-	54.42	0.10	0.19	2.16	0.01	13.34	0.04	0.30	28.19	0.15	-	99.21	3.78	24.79	99.28	49.32	47.30	3.38	100.00
oxi-153	0.03	54.82	0.10	0.32	2.07	-	13.75	0.01	0.22	27.45	0.17	0.01	99.27	3.25	24.53	99.28	48.58	48.53	2.89	100.00

McLean. Orthopyroxene

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
opx-1	57.20	0.16	1.23	0.39	33.43	1.24	0.16	6.23	0.08	0.15	-	100.27
opx-2	56.98	0.12	1.07	0.40	33.33	1.23	0.15	6.07	0.09	0.14	-	99.58
opx-3	57.14	0.12	1.20	0.45	33.36	1.23	0.14	6.06	0.08	0.15	-	99.93
opx-4	56.93	0.13	1.27	0.46	33.43	1.17	0.17	6.11	0.10	0.14	-	99.90
opx-5	57.14	-	0.96	0.59	34.13	1.44	0.14	5.04	0.08	0.06	-	99.58
opx-6	57.37	0.01	0.97	0.63	34.33	1.23	0.14	5.36	0.13	-	0.01	100.19
opx-7	57.00	0.13	1.28	0.37	33.29	1.19	0.14	6.25	0.09	0.13	-	99.88
opx-8	56.81	0.09	1.45	0.71	33.30	1.45	0.14	5.65	0.12	0.18	-	99.89
opx-9	56.22	-	3.82	1.06	34.56	0.48	0.08	4.44	0.08	0.01	-	100.73
opx-10	56.95	0.12	1.10	0.33	33.50	1.20	0.13	6.22	0.10	0.15	-	99.81
opx-11	57.03	0.11	1.38	0.71	33.56	1.42	0.16	5.29	0.14	0.18	-	99.97
opx-12	57.05	0.09	1.29	0.78	33.61	1.45	0.12	5.31	0.09	0.19	0.01	99.99
opx-13	57.03	0.11	1.48	0.66	33.30	1.36	0.14	5.54	0.12	0.17	-	99.91
opx-14	57.12	0.15	1.17	0.39	33.44	1.15	0.10	6.18	0.09	0.14	-	99.93
opx-15	57.23	0.14	1.14	0.37	33.59	1.18	0.18	6.29	0.07	0.16	-	100.35
opx-16	57.81	0.01	1.12	0.32	35.85	0.18	0.11	4.91	0.04	0.01	-	100.36
opx-17	57.18	0.13	1.18	0.37	33.55	1.16	0.11	6.12	0.14	0.15	-	100.09
opx-18	57.10	0.12	1.11	0.37	33.22	1.17	0.09	6.18	0.07	0.15	0.01	99.59
opx-19	57.03	0.12	1.23	0.41	33.59	1.19	0.17	6.14	0.10	0.15	0.01	100.13
opx-20	57.32	0.11	1.26	0.38	33.53	1.13	0.15	6.09	0.14	0.14	0.01	100.26
opx-21	57.01	0.16	1.18	0.38	33.57	1.17	0.14	6.11	0.10	0.14	0.01	99.98
opx-22	56.93	0.10	1.33	0.72	33.35	1.41	0.12	5.45	0.12	0.20	-	99.75
opx-23	57.34	0.16	1.26	0.39	33.51	1.17	0.13	6.21	0.12	0.15	-	100.43
opx-24	57.37	0.15	1.22	0.41	33.37	1.16	0.15	6.01	0.15	0.15	-	100.14
opx-25	57.12	0.17	1.19	0.42	33.38	1.24	0.15	6.12	0.10	0.15	-	100.05
opx-26	57.01	0.12	1.46	0.66	33.48	1.42	0.11	5.43	0.07	0.19	-	99.95
opx-27	57.21	0.11	1.15	0.41	33.45	1.11	0.16	6.07	0.12	0.14	-	99.94
opx-28	56.83	0.09	1.25	0.34	33.61	1.09	0.08	6.42	0.09	0.14	-	99.94
opx-29	57.05	0.14	1.17	0.42	33.48	1.11	0.09	6.25	0.12	0.14	-	99.96
opx-30	57.06	0.11	1.27	0.79	33.58	1.48	0.16	5.41	0.11	0.20	-	100.17
opx-31	57.32	0.16	1.33	0.38	33.78	1.11	0.13	6.11	0.08	0.14	-	100.54
opx-32	57.19	0.18	1.19	0.44	33.37	1.19	0.11	6.14	0.11	0.16	-	100.08
opx-33	56.90	0.10	1.53	0.67	33.71	1.31	0.16	5.49	0.10	0.20	-	100.17
opx-34	57.93	0.02	1.32	0.38	35.39	0.35	0.10	4.91	0.06	0.02	-	100.48
opx-35	57.09	0.12	1.19	0.38	33.40	1.09	0.11	6.19	0.10	0.14	-	99.81
opx-36	56.98	0.15	1.25	0.45	33.51	1.19	0.10	6.15	0.15	0.15	-	100.08
opx-37	57.11	0.15	1.23	0.32	33.25	1.17	0.14	6.10	0.13	0.16	-	99.76
opx-38	56.86	0.13	1.16	0.39	33.46	1.18	0.14	6.30	0.09	0.14	-	99.86
opx-39	57.10	0.10	1.19	0.43	33.53	1.16	0.15	6.31	0.13	0.16	-	100.25
opx-40	57.25	0.14	1.14	0.38	33.41	1.15	0.16	6.18	0.12	0.14	-	100.07
opx-41	57.16	0.13	1.14	0.38	33.59	1.18	0.14	6.47	0.19	0.16	0.02	100.55
opx-42	57.10	0.11	1.24	0.44	33.69	1.17	0.15	6.18	0.09	0.15	-	100.33
opx-43	57.07	0.09	1.45	0.71	33.58	1.46	0.15	5.28	0.14	0.15	-	100.07
opx-44	57.10	0.17	1.19	0.41	33.54	1.06	0.13	6.22	0.08	0.14	-	100.05
opx-45	57.07	0.14	1.16	0.40	33.42	1.21	0.12	6.15	0.13	0.14	-	99.94
opx-46	56.96	0.12	1.18	0.36	33.28	1.14	0.12	6.14	0.11	0.15	-	99.55
opx-47	56.70	0.13	1.15	0.46	33.29	1.17	0.13	6.30	0.11	0.17	-	99.60
opx-48	57.25	0.03	1.03	0.72	33.94	1.26	0.10	5.14	0.17	0.09	0.01	99.76
opx-49	57.00	0.17	1.13	0.41	33.34	1.14	0.11	6.03	0.04	0.14	-	99.52

McLean. Orthopyroxene. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
opx-50	57.10	0.12	1.08	0.41	33.40	1.16	0.11	6.27	0.12	0.13	-	99.92
opx-51	57.25	0.17	1.15	0.38	33.60	1.20	0.12	6.29	0.11	0.15	-	100.41
opx-52	57.43	0.01	1.02	0.51	34.00	1.42	0.12	5.43	0.14	0.05	-	100.13
opx-53	56.89	0.13	1.13	0.37	33.34	1.10	0.13	6.29	0.11	0.14	0.01	99.64
opx-54	57.14	0.11	1.21	0.42	33.32	1.16	0.16	6.32	0.10	0.14	0.01	100.09
opx-55	56.72	0.15	1.16	0.37	33.55	1.15	0.14	6.13	0.10	0.14	-	99.62
opx-56	57.16	0.12	1.14	0.33	33.25	1.13	0.15	6.38	0.11	0.15	-	99.92
opx-57	57.13	0.11	1.37	0.86	33.47	1.42	0.15	5.52	0.13	0.19	0.01	100.35
opx-58	56.96	0.09	1.17	0.42	33.32	1.13	0.07	6.20	0.13	0.16	-	99.67
opx-59	56.96	0.11	1.21	0.39	33.36	1.12	0.12	5.98	0.15	0.14	-	99.55
opx-60	57.40	0.11	1.20	0.36	33.41	1.17	0.12	6.04	0.07	0.16	-	100.05
opx-61	56.88	0.14	1.17	0.38	33.46	1.20	0.11	6.12	0.09	0.14	-	99.70
opx-62	56.89	0.13	1.17	0.40	33.42	1.16	0.12	6.29	0.12	0.13	-	99.82
opx-63	56.86	0.13	1.20	0.46	33.29	1.08	0.17	6.26	0.12	0.15	-	99.74
opx-64	57.08	0.18	1.15	0.40	33.42	1.02	0.16	6.15	0.12	0.14	-	99.80
opx-65	57.03	0.13	1.18	0.38	33.57	1.14	0.11	6.18	0.12	0.13	-	99.97
opx-66	57.10	0.16	1.16	0.39	33.48	1.09	0.09	6.14	0.09	0.14	-	99.83
opx-67	57.83	0.01	1.18	0.42	35.80	0.12	0.13	4.76	0.07	0.02	-	100.33
opx-68	57.29	0.10	1.41	0.64	33.29	1.40	0.09	5.57	0.09	0.20	-	100.08
opx-69	56.88	0.15	1.25	0.43	33.46	1.12	0.12	6.28	0.12	0.14	-	99.95
opx-70	57.37	0.11	1.17	0.38	33.32	1.16	0.18	6.19	0.14	0.14	-	100.17
opx-71	57.16	0.19	1.08	0.33	33.87	0.91	0.12	6.34	0.11	0.19	-	100.32
opx-72	57.13	0.15	1.21	0.41	33.83	1.14	0.14	6.15	0.14	0.13	-	100.44
opx-73	57.43	0.13	1.21	0.40	33.29	1.24	0.11	6.09	0.15	0.15	-	100.19
opx-74	56.86	0.15	1.27	0.45	33.54	1.16	0.11	6.24	0.09	0.14	-	100.00
opx-75	57.06	0.10	1.15	0.36	33.14	1.18	0.14	5.99	0.11	0.14	-	99.37
opx-76	56.81	0.13	1.22	0.42	33.35	1.10	0.07	6.10	0.09	0.14	-	99.44
opx-77	57.54	-	1.30	0.29	35.53	0.21	0.15	4.86	0.07	0.02	-	99.97
opx-78	56.74	0.14	1.14	0.37	33.52	1.12	0.15	6.08	0.14	0.14	-	99.55
opx-79	56.75	0.08	1.43	0.65	33.30	1.37	0.13	5.43	0.10	0.17	-	99.41

McLean. Olivine

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
oli-1	40.47	0.03	-	0.04	48.44	0.08	0.15	9.83	0.35	0.02	-	99.43
oli-2	39.82	0.03	-	0.01	44.97	0.01	0.14	14.12	0.09	-	-	99.20
oli-3	39.73	0.06	-	0.02	44.99	0.03	0.14	14.50	0.08	-	-	99.53
oli-4	39.76	0.03	-	-	45.26	-	0.12	14.30	0.08	0.01	-	99.56
oli-5	40.52	0.02	-	0.04	48.22	0.07	0.12	10.07	0.38	0.03	-	99.47
oli-6	40.75	-	-	0.06	48.90	0.10	0.13	9.67	0.39	0.02	-	100.01
oli-7	39.73	0.05	-	-	45.30	0.02	0.14	14.48	0.06	-	-	99.78
oli-8	40.08	0.05	-	-	45.46	-	0.17	13.79	0.10	-	0.02	99.68
oli-9	40.54	0.02	-	0.04	48.82	0.04	0.13	9.15	0.33	0.03	0.02	99.12
oli-10	40.02	0.04	-	0.02	44.99	0.04	0.17	14.39	0.09	-	0.01	99.77
oli-11	39.80	0.05	-	-	45.20	-	0.14	14.63	0.06	-	-	99.87
oli-12	39.90	0.03	-	0.03	45.36	0.08	0.14	14.38	0.03	0.01	-	99.96
oli-13	40.74	0.01	-	0.05	48.84	0.11	0.12	9.29	0.45	0.02	0.01	99.65
oli-14	40.66	0.02	-	0.03	48.88	0.09	0.14	9.47	0.37	0.01	0.02	99.69
oli-15	40.34	0.02	-	0.05	47.85	0.07	0.15	10.70	0.36	0.02	0.03	99.61

Morrisette Creek. Amphibole

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	F	Cl	Total	F=O	Cl=O	Total
MC-amp-2	45.39	0.03	12.93	2.41	19.60	11.60	0.06	1.70	0.08	3.37	0.77	0.13	0.05	98.12	-0.05	-0.01	98.05
MC-amp-3	46.12	0.14	11.75	2.43	19.57	10.21	0.00	2.08	0.08	4.10	0.74	0.09	0.04	97.33	-0.04	-0.01	97.29
MC-amp-4	45.47	0.07	12.70	2.35	19.14	10.86	0.05	2.43	0.12	3.54	0.96	0.16	0.07	97.90	-0.07	-0.02	97.82
MC-amp-5	45.61	0.04	11.96	2.23	19.69	10.75	0.07	2.39	0.09	3.94	0.32	0.08	0.10	97.28	-0.04	-0.02	97.22
MC-amp-6	45.70	0.06	11.88	2.38	19.58	11.10	0.08	2.66	0.13	3.70	0.49	0.08	0.03	97.85	-0.03	-0.01	97.81
MC-amp-7	46.26	0.12	11.75	2.11	19.74	11.31	0.06	2.12	0.15	3.66	0.38	0.12	0.05	97.83	-0.05	-0.01	97.76
MC-amp-10	45.87	0.01	12.31	2.27	19.71	11.17	0.00	2.16	0.10	3.53	0.80	0.00	0.10	98.02	0.00	-0.02	98.00
MC-amp-11	46.05	0.04	12.32	2.12	19.57	10.82	0.09	2.66	0.08	3.90	0.35	0.05	0.01	98.05	-0.02	0.00	98.03
MC-amp-12	45.27	0.23	12.52	2.42	19.37	11.10	0.04	2.25	0.13	3.61	0.88	0.15	0.03	98.01	-0.06	-0.01	97.94
MC-amp-14	47.23	0.04	11.82	2.37	20.34	11.59	0.05	2.15	0.11	3.59	0.29	0.04	0.07	99.69	-0.02	-0.02	99.66
MC-amp-15	45.53	0.22	12.46	2.35	19.46	11.12	0.07	2.28	0.13	3.53	0.91	0.11	0.07	98.24	-0.05	-0.02	98.18
MC-amp-16	45.91	0.31	11.71	2.55	19.51	11.28	0.07	2.02	0.12	3.47	1.10	0.12	0.05	98.21	-0.05	-0.01	98.15
MC-amp-17	46.21	0.05	12.02	2.38	19.19	9.49	0.06	2.98	0.13	4.63	0.49	0.06	0.01	97.70	-0.03	0.00	97.67
MC-amp-18	45.16	0.07	12.37	2.36	19.30	11.58	0.05	2.22	0.13	3.28	0.98	0.08	0.06	97.63	-0.03	-0.01	97.59
MC-amp-19	45.85	0.01	11.82	2.18	19.62	11.20	0.04	2.46	0.17	3.35	0.83	0.04	0.05	97.60	-0.02	-0.01	97.57
MC-amp-20	45.91	0.31	11.81	2.35	19.34	10.37	0.02	2.66	0.10	4.04	0.74	0.00	0.02	97.66	0.00	-0.01	97.66
MC-amp-21	45.85	0.00	11.95	2.37	19.49	11.32	0.03	2.55	0.16	3.40	0.89	0.00	0.09	98.10	0.00	-0.02	98.08
MC-amp-22	45.58	0.04	12.01	2.39	19.53	11.49	0.04	2.21	0.11	3.32	1.12	0.13	0.12	98.09	-0.06	-0.03	98.01
MC-amp-23	45.60	0.07	11.87	2.31	19.49	11.51	0.05	2.20	0.12	3.35	0.82	0.02	0.09	97.50	-0.01	-0.02	97.47
MC-amp-24	47.45	0.30	9.83	2.28	20.40	10.81	0.07	2.11	0.08	3.67	1.00	0.20	0.02	98.22	-0.08	-0.01	98.13
MC-amp-25	47.20	0.01	11.29	1.69	20.18	10.72	0.05	2.14	0.11	3.85	0.48	0.11	0.04	97.84	-0.05	-0.01	97.79
MC-amp-26	45.92	0.04	12.15	2.43	19.76	11.41	0.05	2.36	0.08	3.65	0.46	0.07	0.10	98.49	-0.03	-0.02	98.43
MC-amp-27	45.61	0.05	12.24	2.30	19.67	11.12	0.07	2.20	0.11	3.56	0.75	0.10	0.11	97.88	-0.04	-0.02	97.82
MC-amp-29	45.48	0.07	12.87	2.33	19.30	10.93	0.11	2.38	0.11	3.72	0.96	0.07	0.12	98.44	-0.03	-0.03	98.39
MC-amp-30	46.18	0.33	11.51	2.47	19.83	10.88	0.04	1.79	0.07	3.67	0.97	0.28	0.07	98.08	-0.12	-0.02	97.95
MC-amp-31	47.70	0.01	10.50	1.98	19.78	8.76	0.13	3.23	0.07	4.94	0.30	0.09	0.00	97.50	-0.04	0.00	97.46
MC-amp-32	45.32	0.56	11.93	2.01	19.00	11.05	0.07	2.89	0.09	3.78	0.98	0.06	0.07	97.81	-0.02	-0.02	97.77
MC-amp-33	46.30	0.08	12.05	2.37	19.72	10.55	0.06	2.23	0.10	4.10	0.40	0.13	0.02	98.11	-0.05	-0.01	98.05
MC-amp-34	46.92	0.09	10.50	1.64	20.37	11.25	0.09	2.22	0.08	3.45	0.94	0.15	0.06	97.77	-0.06	-0.01	97.69
MC-amp-35	45.43	0.02	12.15	2.28	19.37	11.18	0.05	2.41	0.10	3.47	1.00	0.11	0.09	97.67	-0.05	-0.02	97.60
MC-amp-36	45.71	0.32	11.20	1.62	18.72	10.50	0.17	3.97	0.05	3.65	1.22	0.06	0.04	97.24	-0.03	-0.01	97.20
MC-amp-37	46.14	0.13	12.01	2.60	19.69	10.64	0.02	1.84	0.10	3.80	0.81	0.19	0.10	98.07	-0.08	-0.02	97.97
MC-amp-38	45.83	0.20	11.96	2.40	19.10	10.85	0.04	2.62	0.10	3.89	0.83	0.06	0.10	97.97	-0.03	-0.02	97.92
MC-amp-39	45.82	0.21	11.93	2.30	19.24	10.83	0.02	2.44	0.16	3.94	0.92	0.01	0.06	97.87	0.00	-0.01	97.86
MC-amp-40	45.83	0.08	11.91	2.00	19.74	11.25	0.07	2.56	0.15	3.63	0.62	0.12	0.07	98.03	-0.05	-0.02	97.96

Morrisette Creek. Pyroxene

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	F	Cl	Total	F=O	Cl=O	Total
MC-amp-1	54.38	0.10	1.74	1.23	15.94	22.19	0.11	2.86	0.06	1.54	0.00	0.00	0.00	100.15	0.00	0.00	100.15
MC-amp-8	54.66	0.04	2.42	1.79	15.91	22.07	0.01	1.42	0.01	1.69	0.00	0.00	0.00	100.03	0.00	0.00	100.03
MC-amp-9	54.52	0.01	1.98	2.05	15.82	21.97	0.08	1.39	0.03	1.76	0.01	0.00	0.00	99.63	0.00	0.00	99.63
MC-amp-13	55.01	0.00	2.15	1.78	16.13	22.54	0.04	1.26	0.06	1.74	0.01	0.00	0.00	100.72	0.00	0.00	100.72
MC-amp-28	54.59	0.09	2.12	2.03	15.82	21.97	0.09	1.67	0.06	1.88	0.00	0.00	0.00	100.33	0.00	0.00	100.33

OPAP. Garnet

Sample	Colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
OPAP-1	dk purple	41.07	0.07	17.55	7.88	19.21	6.99	0.31	6.52	0.02	0.00	0.00	99.62
OPAP-2	dk purple	41.36	0.07	18.01	7.54	19.66	6.80	0.26	6.37	0.00	0.00	0.00	100.05
OPAP-3	dk purple	40.56	0.05	15.66	10.05	18.77	7.72	0.28	6.29	0.03	0.04	0.02	99.47
OPAP-4	dk purple	41.52	0.52	18.74	5.67	20.08	6.01	0.29	7.38	0.00	0.02	0.00	100.21
OPAP-5	dk purple	41.22	0.07	17.24	8.19	19.35	7.40	0.32	6.67	0.00	0.00	0.01	100.45
OPAP-6	dk purple	40.25	0.16	14.21	11.99	17.92	8.39	0.32	6.34	0.00	0.00	0.00	99.58
OPAP-7	dk purple	40.37	0.17	14.45	11.65	18.25	8.20	0.33	6.37	0.08	0.02	0.03	99.93
OPAP-8	dk purple	41.63	0.24	19.21	5.55	20.72	5.68	0.33	6.67	0.03	0.02	0.01	100.10
OPAP-9	dk purple	41.10	0.12	17.95	7.52	19.49	6.74	0.30	6.65	0.00	0.01	0.01	99.89
OPAP-10	dk purple	40.40	0.16	14.66	11.57	18.24	8.33	0.34	6.57	0.00	0.00	0.02	100.28
OPAP-11	dk purple	40.50	0.14	14.75	11.39	18.25	8.20	0.28	6.62	0.04	0.00	0.00	100.17
OPAP-12	purple	40.75	0.13	14.17	12.23	18.33	8.59	0.30	6.51	0.00	0.00	0.00	101.01
OPAP-13	purple	41.40	0.50	18.34	5.64	19.90	5.94	0.26	7.44	0.01	0.02	0.00	99.46
OPAP-14	purple	40.90	0.66	17.00	7.58	19.60	6.61	0.29	7.34	0.00	0.02	0.00	99.99
OPAP-15	purple	41.40	0.25	19.23	5.52	20.55	5.51	0.36	6.65	0.05	0.02	0.01	99.54
OPAP-16	purple	42.10	0.01	20.20	5.59	22.40	2.75	0.50	7.06	0.02	0.00	0.01	100.63
OPAP-17	purple	41.66	0.29	19.91	4.82	20.53	4.95	0.35	7.28	0.00	0.04	0.03	99.85
OPAP-18	purple	41.30	0.13	18.06	7.26	19.50	6.67	0.35	6.70	0.00	0.01	0.00	99.97
OPAP-19	purple	41.70	0.48	20.86	2.98	19.76	5.48	0.30	8.56	0.04	0.01	0.00	100.16
OPAP-20	purple	42.36	0.03	23.67	0.65	21.31	4.25	0.37	8.23	0.00	0.01	0.00	100.88
OPAP-21	purple	40.91	0.02	16.02	9.82	18.81	7.45	0.24	6.45	0.04	0.01	0.00	99.76
OPAP-22	purple	40.92	0.40	17.60	7.40	19.50	6.69	0.31	6.30	0.00	0.01	0.00	99.12
OPAP-23	purple	40.56	0.17	13.93	12.04	17.81	8.57	0.34	6.60	0.00	0.00	0.04	100.04
OPAP-24	purple	41.78	0.10	21.52	3.04	20.43	4.93	0.41	7.63	0.00	0.02	0.00	99.85
OPAP-25	purple	41.66	0.10	18.57	6.26	20.19	6.41	0.21	6.63	0.01	0.00	0.03	100.07
OPAP-26	purple	41.18	0.10	17.76	7.79	19.35	7.02	0.28	6.49	0.02	0.00	0.00	99.98
OPAP-27	purple	41.44	0.13	18.28	7.21	20.39	6.48	0.30	6.03	0.00	0.00	0.00	100.25
OPAP-28	purple	41.15	0.61	17.10	7.28	19.89	6.59	0.30	7.42	0.06	0.02	0.00	100.41
OPAP-29	purple	41.36	0.46	19.56	4.40	20.09	5.69	0.31	7.66	0.04	0.01	0.01	99.57
OPAP-30	purple	41.04	0.03	17.19	8.33	19.08	7.45	0.30	6.51	0.02	0.00	0.00	99.95
OPAP-31	purple	41.94	0.37	19.50	5.45	21.02	5.24	0.36	6.80	0.03	0.04	0.00	100.74
OPAP-32	purple	41.83	0.03	20.25	5.24	21.96	3.42	0.43	7.19	0.00	0.01	0.00	100.36
OPAP-33	purple	41.06	0.46	16.03	9.21	19.31	7.23	0.25	6.60	0.00	0.01	0.00	100.16
OPAP-34	purple	40.60	0.12	15.29	10.53	18.78	7.85	0.27	6.49	0.00	0.00	0.00	99.92
OPAP-35	purple	41.85	0.04	20.32	5.25	21.99	3.39	0.46	7.00	0.05	0.02	0.00	100.38
OPAP-36	purple	41.03	0.18	16.25	9.47	19.85	6.95	0.24	6.02	0.04	0.00	0.00	100.03
OPAP-37	purple	41.43	0.39	19.52	5.57	20.70	5.26	0.36	6.68	0.00	0.03	0.01	99.93
OPAP-38	purple	41.23	0.18	16.75	8.63	19.31	7.02	0.27	6.65	0.04	0.00	0.00	100.08
OPAP-39	purple	41.45	0.22	18.15	7.09	19.75	6.65	0.30	6.91	0.08	0.01	0.00	100.60
OPAP-40	purple	41.70	0.00	19.99	5.68	22.35	2.67	0.45	7.21	0.00	0.02	0.01	100.08
OPAP-41	purple	42.27	0.04	23.65	0.55	21.04	4.20	0.43	8.22	0.02	0.02	0.01	100.43
OPAP-42	purple	41.14	0.42	17.95	7.09	19.84	6.51	0.33	6.79	0.01	0.02	0.00	100.09
OPAP-43	purple	41.45	0.13	18.27	7.35	19.69	6.65	0.28	6.56	0.01	0.00	0.00	100.38
OPAP-44	purple	41.23	0.54	17.94	7.08	19.63	6.59	0.35	6.98	0.05	0.02	0.02	100.42
OPAP-45	purple	40.25	0.15	14.31	11.76	18.07	8.48	0.35	6.34	0.00	0.00	0.00	99.71
OPAP-46	purple	40.99	0.12	17.16	8.35	18.91	7.17	0.34	6.98	0.00	0.01	0.00	100.02
OPAP-47	purple	41.23	0.52	18.65	5.74	20.12	6.01	0.29	7.59	0.01	0.05	0.00	100.21
OPAP-48	purple	41.67	0.31	19.51	5.21	20.50	5.98	0.31	6.86	0.03	0.03	0.03	100.43
OPAP-49	purple	42.03	0.01	20.11	5.56	22.42	2.62	0.41	7.02	0.02	0.01	0.00	100.20
OPAP-50	purple	41.29	0.50	18.62	5.79	20.19	6.04	0.31	7.37	0.05	0.03	0.00	100.17
OPAP-51	purple	41.27	0.53	18.47	5.71	20.23	5.97	0.31	7.45	0.00	0.04	0.00	99.99
OPAP-52	purple	41.21	0.29	16.21	9.24	20.10	6.45	0.31	6.30	0.00	0.02	0.01	100.12
OPAP-53	purple	41.73	0.41	19.27	5.50	20.62	5.28	0.34	6.56	0.00	0.05	0.00	99.75
OPAP-55	purple	40.86	0.11	16.73	9.19	19.06	7.24	0.33	6.51	0.02	0.01	0.03	100.09
OPAP-56	purple	41.32	0.03	17.21	8.37	19.49	7.17	0.30	6.63	0.04	0.01	0.00	100.55
OPAP-57	purple	41.72	0.53	18.62	5.79	20.12	5.96	0.29	7.38	0.08	0.03	0.03	100.55

OPAP. Garnet. continued

Sample	Colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
OPAP-58	purple	41.78	0.24	19.19	5.71	20.68	5.78	0.42	6.77	0.00	0.02	0.00	100.58
OPAP-59	purple	42.11	0.02	20.06	5.77	22.49	2.73	0.39	7.06	0.07	0.02	0.00	100.71
OPAP-60	purple	41.30	0.51	19.24	4.93	19.92	6.09	0.33	7.71	0.03	0.02	0.00	100.08
OPAP-61	purple	41.14	0.18	16.96	8.52	19.97	6.75	0.26	6.53	0.02	0.01	0.00	100.32
OPAP-62	purple	40.66	0.62	17.19	7.53	19.53	6.52	0.31	7.32	0.00	0.04	0.00	99.71
OPAP-63	purple	37.60	0.09	20.79	0.00	4.21	7.09	0.88	29.58	0.00	0.00	0.00	100.25
OPAP-64	purple	42.00	0.02	19.82	5.63	21.65	3.68	0.47	7.03	0.01	0.02	0.02	100.35
OPAP-65	purple	41.61	0.24	19.21	5.69	20.67	5.74	0.36	6.70	0.02	0.02	0.01	100.27
OPAP-66	purple	41.58	0.35	19.42	5.68	20.85	5.22	0.36	6.51	0.00	0.05	0.00	100.01
OPAP-67	purple	41.50	0.50	18.53	5.66	20.01	5.97	0.30	7.28	0.00	0.02	0.00	99.76
OPAP-68	purple	41.43	0.52	21.06	2.56	19.58	5.65	0.40	9.00	0.00	0.04	0.01	100.25
OPAP-69	purple	41.51	0.04	18.38	6.64	19.82	6.58	0.31	6.44	0.00	0.01	0.00	99.72
OPAP-70	red	41.50	0.37	19.36	5.55	21.02	5.38	0.28	6.66	0.00	0.04	0.00	100.16
OPAP-72	red	42.13	0.03	19.63	5.24	20.54	6.12	0.30	6.33	0.01	0.00	0.00	100.33
OPAP-73	red	42.10	0.03	20.36	5.44	22.24	2.78	0.43	6.93	0.01	0.02	0.00	100.35
OPAP-74	red	40.25	0.15	14.06	12.13	17.87	8.43	0.30	6.53	0.02	0.01	0.00	99.73
OPAP-77	red	41.16	0.04	16.96	8.68	19.43	7.06	0.31	6.48	0.03	0.01	0.02	100.17
OPAP-79	red	40.06	0.60	13.59	11.41	18.54	6.92	0.37	7.83	0.00	0.03	0.00	99.64
OPAP-80	red	41.22	0.50	17.85	6.94	20.02	6.29	0.30	6.65	0.00	0.02	0.00	99.78
OPAP-81	red	41.36	0.51	18.62	5.70	20.07	5.96	0.33	7.46	0.00	0.03	0.00	100.05
OPAP-82	red	42.26	0.06	23.56	0.73	21.14	4.17	0.41	8.53	0.00	0.03	0.00	100.89
OPAP-83	red	41.04	0.12	18.12	7.39	19.47	6.76	0.28	6.51	0.03	0.01	0.00	99.73
OPAP-84	red	41.57	0.51	20.79	2.65	19.44	5.47	0.36	9.18	0.01	0.04	0.02	100.03
OPAP-85	red	41.88	0.13	21.55	2.90	20.30	4.84	0.47	7.83	0.00	0.02	0.00	99.90
OPAP-86	red	41.85	0.01	21.89	2.88	20.64	4.31	0.53	8.22	0.00	0.01	0.00	100.32
OPAP-87	red	41.44	0.45	18.54	6.20	20.06	6.33	0.25	6.69	0.03	0.01	0.01	100.02
OPAP-88	red	41.43	0.37	19.36	5.55	20.79	5.16	0.30	6.76	0.01	0.04	0.01	99.77
OPAP-89	red	41.11	0.63	16.13	8.97	19.48	6.96	0.30	6.62	0.02	0.02	0.01	100.26
OPAP-90	red	41.49	0.23	19.31	5.80	20.22	5.41	0.47	7.52	0.00	0.05	0.00	100.50
OPAP-91	red	41.10	0.25	18.08	7.06	19.65	6.65	0.32	6.87	0.00	0.01	0.00	99.99
OPAP-92	purple	40.86	0.55	16.76	8.40	19.02	7.20	0.35	7.02	0.03	0.03	0.01	100.22
OPAP-93	purple	41.25	0.38	18.54	6.09	20.10	6.33	0.29	6.61	0.02	0.01	0.01	99.62
OPAP-94	purple	41.09	0.65	19.01	4.53	19.43	6.05	0.34	8.78	0.03	0.05	0.00	99.96
OPAP-95	red	41.10	0.08	17.48	7.71	19.44	6.98	0.29	6.90	0.00	0.01	0.00	99.98
OPAP-96	orange	41.93	0.02	19.93	5.72	22.08	3.06	0.49	7.12	0.00	0.02	0.00	100.37
OPAP-97	orange	41.49	0.50	19.79	4.41	20.14	5.53	0.31	7.73	0.00	0.04	0.01	99.94
OPAP-98	orange	41.70	0.47	19.74	4.38	20.28	5.65	0.31	7.61	0.00	0.02	0.00	100.16
OPAP-99	orange	41.42	0.46	19.73	4.39	20.30	5.64	0.30	7.65	0.05	0.04	0.00	99.97
OPAP-100	orange	41.39	0.46	19.74	4.66	20.38	5.66	0.28	7.53	0.03	0.04	0.04	100.21
OPAP-101	orange	41.47	0.51	18.43	5.71	20.16	6.03	0.31	7.49	0.03	0.03	0.01	100.17
OPAP-102	orange	41.37	0.42	19.89	4.45	20.33	5.57	0.32	7.69	0.03	0.02	0.01	100.11
OPAP-103	orange	41.36	0.48	18.68	5.78	20.03	5.96	0.29	7.23	0.04	0.04	0.00	99.88
OPAP-104	orange	41.74	0.49	19.83	4.40	20.31	5.61	0.29	7.84	0.00	0.03	0.02	100.54
OPAP-105	orange	41.37	0.47	18.64	5.76	20.28	6.04	0.29	7.27	0.00	0.03	0.00	100.13
OPAP-106	orange	41.49	0.55	20.84	2.62	19.63	5.66	0.32	9.07	0.00	0.03	0.00	100.20
OPAP-107	orange	41.47	0.49	19.64	4.43	20.50	5.63	0.30	7.76	0.08	0.03	0.01	100.32
OPAP-108	orange	41.70	0.50	18.59	5.82	19.97	5.91	0.25	7.26	0.00	0.03	0.00	100.04
OPAP-109	orange	41.52	0.51	18.65	5.68	20.28	6.07	0.33	7.15	0.06	0.02	0.00	100.26
OPAP-110	orange	37.71	0.05	20.74	0.02	4.27	7.17	0.86	30.02	0.00	0.00	0.00	100.85

OPAP. Garnet. continued

Sample	Colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
OPAP-111	orange	41.37	0.47	19.78	4.43	20.29	5.68	0.30	7.86	0.00	0.03	0.00	100.21
OPAP-112	orange	41.59	0.53	20.75	2.74	19.67	5.60	0.39	9.05	0.02	0.03	0.01	100.38
OPAP-113	orange	41.34	0.46	19.58	4.31	20.31	5.75	0.24	7.58	0.02	0.03	0.00	99.62
OPAP-114	orange	41.58	0.45	19.69	4.48	20.35	5.67	0.31	7.79	0.01	0.02	0.00	100.34
OPAP-115	orange	41.28	0.22	18.06	7.03	19.70	6.60	0.30	6.83	0.06	0.03	0.00	100.10
OPAP-116	orange	38.02	0.06	20.93	0.04	5.46	6.40	1.21	28.53	0.02	0.01	0.00	100.66
OPAP-117	orange	37.92	0.02	21.13	0.01	5.57	6.75	1.20	28.04	0.02	0.00	0.00	100.65
OPAP-118	orange	37.95	0.07	21.04	0.01	5.57	6.33	1.11	28.07	0.00	0.00	0.00	100.14
OPAP-119	orange	37.63	0.07	20.70	0.01	4.05	6.98	0.88	30.02	0.04	0.01	0.00	100.37
OPAP-120	orange	38.06	0.02	21.13	0.03	5.38	6.64	1.12	28.51	0.05	0.01	0.00	100.92
OPAP-121	orange	41.46	0.53	20.74	2.64	19.42	5.53	0.35	9.23	0.01	0.04	0.01	99.97
OPAP-122	orange	38.54	0.04	21.60	0.18	8.38	3.10	0.69	28.04	0.02	0.01	0.02	100.64
OPAP-123	orange	37.90	0.04	21.00	0.02	5.47	6.55	1.28	28.18	0.00	0.00	0.00	100.43
OPAP-124	orange	37.78	0.10	20.89	0.00	5.41	6.37	1.14	28.38	0.00	0.00	0.03	100.10
OPAP-125	orange	37.50	0.09	20.61	0.01	4.08	6.98	0.83	30.21	0.08	0.00	0.00	100.39
OPAP-126	orange	37.55	0.08	20.54	0.02	4.14	7.11	0.86	29.99	0.00	0.01	0.00	100.29
OPAP-127	orange	37.56	0.13	20.88	0.02	5.32	6.46	1.27	28.47	0.03	0.01	0.01	100.14
OPAP-128	orange	37.99	0.11	20.97	0.00	5.37	6.41	1.18	28.32	0.00	0.00	0.02	100.35
OPAP-129	orange	37.90	0.06	20.87	0.02	5.64	6.41	1.14	28.17	0.00	0.01	0.00	100.22
OPAP-130	orange	41.42	0.54	20.90	2.65	19.38	5.67	0.40	9.26	0.00	0.03	0.00	100.24
OPAP-131	orange	41.23	0.55	20.77	2.67	19.43	5.67	0.38	9.00	0.02	0.04	0.00	99.75
OPAP-132	orange	41.25	0.54	20.64	2.64	19.53	5.65	0.43	9.07	0.01	0.02	0.00	99.78
OPAP-133	orange	37.42	0.06	20.76	0.00	4.27	7.09	0.90	29.74	0.04	0.00	0.01	100.28
OPAP-134	orange	41.47	0.52	18.64	5.78	20.08	5.98	0.28	7.31	0.00	0.03	0.00	100.10
OPAP-135	orange	41.54	0.10	18.87	6.15	20.02	6.21	0.21	6.66	0.00	0.01	0.00	99.75
OPAP-136	orange	37.89	0.07	21.11	0.00	5.51	6.49	1.15	28.26	0.06	0.01	0.02	100.57
OPAP-137	orange	38.00	0.04	21.10	0.00	5.80	6.47	1.16	27.85	0.03	0.02	0.01	100.48
OPAP-138	orange	41.35	0.55	20.82	2.65	19.30	5.59	0.37	8.95	0.00	0.03	0.00	99.61
OPAP-139	orange	41.73	0.57	21.03	2.56	19.63	5.67	0.31	9.12	0.00	0.02	0.02	100.66
OPAP-140	dk purple	41.81	0.06	17.68	7.73	19.15	6.92	0.27	6.64	0.00	0.00	0.01	100.27
OPAP-141	dk purple	42.00	0.03	20.07	5.52	20.31	4.77	0.42	6.92	0.06	0.03	0.00	100.13
OPAP-142	dk purple	41.15	0.04	15.86	10.08	18.54	7.67	0.28	6.42	0.02	0.00	0.00	100.05
OPAP-143	dk purple	40.78	0.13	14.39	11.85	17.71	8.46	0.31	6.57	0.02	0.00	0.00	100.22
OPAP-144	purple	41.78	0.56	20.85	2.59	19.18	5.55	0.37	9.10	0.00	0.04	0.00	100.01
OPAP-145	purple	42.12	0.02	20.01	5.44	21.65	2.97	0.43	6.99	0.01	0.01	0.00	99.64
OPAP-146	purple	41.95	0.26	20.39	4.32	20.24	4.63	0.43	7.61	0.00	0.05	0.01	99.88
OPAP-147	purple	42.03	0.04	18.59	6.67	19.69	6.55	0.28	6.62	0.02	0.01	0.00	100.51
OPAP-148	purple	42.08	0.15	19.81	5.26	20.02	5.76	0.32	6.79	0.02	0.02	0.00	100.23
OPAP-149	red	42.02	0.46	18.74	5.64	20.10	6.03	0.28	7.67	0.00	0.03	0.00	100.96
OPAP-150	red	41.93	0.46	20.02	4.29	20.07	5.41	0.31	7.77	0.00	0.03	0.01	100.31
OPAP-151	red	41.84	0.45	19.80	4.41	20.09	5.62	0.24	7.61	0.04	0.03	0.00	100.14
OPAP-152	red	42.15	0.48	20.00	4.27	20.14	5.64	0.32	7.57	0.02	0.03	0.00	100.63
OPAP-153	red	42.19	0.54	21.01	2.51	19.21	5.61	0.38	9.13	0.00	0.04	0.00	100.60
OPAP-154	red	41.96	0.43	20.00	4.27	20.00	5.43	0.31	7.57	0.00	0.03	0.01	100.01
OPAP-155	red	41.86	0.47	19.57	4.40	20.06	5.70	0.33	7.95	0.01	0.02	0.00	100.38
OPAP-156	orange	41.90	0.53	20.75	3.03	19.58	5.42	0.34	8.75	0.03	0.03	0.00	100.38
OPAP-157	orange	41.87	0.53	20.81	2.65	19.18	5.60	0.41	9.10	0.00	0.02	0.02	100.19
OPAP-158	orange	41.92	0.61	20.73	2.61	18.98	5.71	0.36	9.01	0.02	0.03	0.00	99.99
OPAP-159	orange	41.98	0.49	20.71	3.04	19.48	5.34	0.39	8.84	0.00	0.03	0.00	100.30

OPAP. Garnet. continued

Sample	Colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
OPAP-160	orange	41.98	0.49	20.74	3.01	19.52	5.59	0.36	8.75	0.01	0.03	0.03	100.51
OPAP-161	purple	41.16	0.05	18.27	6.46	19.95	6.45	0.29	6.45	0.00	0.00	0.00	99.09
OPAP-162	purple	40.94	0.16	18.28	6.51	17.74	8.23	0.39	8.01	0.00	0.01	0.04	100.31
OPAP-163	purple	37.68	0.07	21.20	0.04	6.89	3.12	1.22	29.40	0.00	0.00	0.00	99.62
OPAP-164	purple	41.18	0.04	18.36	6.75	19.60	6.62	0.27	6.94	0.00	0.00	0.00	99.75
OPAP-165	purple	38.21	0.11	21.15	0.06	6.33	6.13	1.23	27.30	0.02	0.02	0.04	100.61
OPAP-166	purple	41.55	0.06	18.40	6.48	19.99	6.51	0.34	6.22	0.01	0.01	0.00	99.58
OPAP-167	purple	40.93	0.39	17.32	7.30	19.54	6.34	0.38	7.08	0.01	0.02	0.04	99.34
OPAP-168	purple	41.45	0.51	19.68	4.23	20.02	5.76	0.34	8.10	0.02	0.02	0.00	100.13
OPAP-169	purple	41.56	0.04	20.73	4.05	19.41	5.26	0.55	8.36	0.00	0.01	0.00	99.98
OPAP-171	purple	41.30	0.05	18.28	6.82	19.75	6.71	0.27	6.58	0.00	0.00	0.00	99.76
OPAP-172	purple	41.05	0.41	17.33	7.78	19.89	5.99	0.32	6.75	0.01	0.03	0.00	99.57
OPAP-173	purple	41.40	0.06	20.75	4.01	19.69	5.36	0.55	8.30	0.04	0.02	0.05	100.22
OPAP-174	purple	41.19	0.38	17.66	6.83	19.62	6.61	0.29	6.61	0.00	0.01	0.01	99.21
OPAP-175	purple	40.60	0.16	17.77	7.00	17.29	8.60	0.36	7.85	0.01	0.01	0.00	99.65
OPAP-176	purple	40.82	0.38	15.95	9.39	19.71	6.82	0.25	6.30	0.05	0.02	0.00	99.68
OPAP-177	purple	41.46	0.46	17.95	6.60	20.16	6.00	0.24	6.91	0.02	0.03	0.01	99.84
OPAP-178	purple	41.83	0.00	21.14	3.73	20.99	4.38	0.48	7.16	0.01	0.02	0.00	99.75
OPAP-179	purple	41.27	0.00	20.14	4.88	19.62	5.91	0.45	7.20	0.00	0.01	0.02	99.49
OPAP-180	purple	40.85	0.12	16.32	9.14	18.86	7.33	0.31	6.92	0.02	0.00	0.00	99.86
OPAP-181	purple	41.53	0.45	18.28	6.42	20.28	5.98	0.26	6.82	0.01	0.03	0.00	100.06
OPAP-182	purple	41.16	0.04	17.38	7.68	19.36	6.89	0.29	6.77	0.00	0.00	0.03	99.60
OPAP-183	purple	41.05	0.41	17.27	7.28	19.54	6.38	0.33	7.24	0.06	0.02	0.00	99.58
OPAP-184	purple	41.64	0.02	20.33	4.78	19.80	5.91	0.47	6.80	0.03	0.01	0.00	99.80
OPAP-185	purple	40.44	0.19	17.65	6.98	17.48	8.40	0.38	7.74	0.01	0.01	0.02	99.29
OPAP-186	purple	40.90	0.15	17.80	6.91	17.50	8.31	0.32	7.84	0.05	0.02	0.00	99.80
OPAP-187	purple	41.51	0.15	17.88	7.14	19.92	6.41	0.26	6.34	0.01	0.00	0.00	99.63
OPAP-188	purple	41.44	0.52	20.67	2.88	20.11	5.14	0.33	8.73	0.01	0.05	0.02	99.91
OPAP-189	purple	41.52	0.01	20.17	5.07	19.63	5.92	0.48	7.00	0.00	0.02	0.05	99.86
OPAP-190	purple	41.42	0.02	20.96	3.71	18.80	5.98	0.51	8.73	0.02	0.01	0.01	100.17
OPAP-191	purple	41.41	0.02	21.03	3.53	19.60	5.18	0.51	8.20	0.01	0.02	0.00	99.52
OPAP-192	purple	41.57	0.11	18.50	6.43	19.90	6.48	0.26	6.67	0.00	0.00	0.00	99.92

OPAP, Chromite

Sample	SiO2	TiO2	Nb2O5	Ta2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
OPAP-1	0.15	2.59	0.00	0.05	7.45	55.80	0.40	13.47	0.04	0.13	19.52	0.19	0.06	99.84	4.53	15.44	100.30
OPAP-2	0.26	2.23	0.00	0.00	8.33	59.66	0.40	12.98	0.00	0.21	22.53	0.10	0.00	100.71	6.65	16.55	101.37
OPAP-3	0.01	0.00	0.00	0.03	9.08	62.20	0.15	11.69	0.04	0.15	17.08	0.00	0.21	100.64	1.50	15.72	100.79
OPAP-4	0.00	0.00	0.01	0.00	10.64	60.30	0.24	12.21	0.04	0.14	16.28	0.09	0.00	99.95	1.21	15.19	100.07
OPAP-5	0.20	0.95	0.02	0.00	8.88	56.26	0.26	13.17	0.04	0.12	20.41	0.19	0.05	100.56	6.29	14.75	101.19
OPAP-6	0.23	0.40	0.00	0.00	12.46	52.18	0.41	[illegible]	0.03	0.27	19.85	0.18	0.00	100.40	7.52	13.08	101.16
OPAP-7	0.02	0.15	0.00	0.00	10.85	61.18	0.21	13.28	0.04	0.24	14.80	0.09	0.04	100.91	1.05	13.86	101.01
OPAP-8	0.00	0.19	0.00	0.04	9.70	61.48	0.30	11.97	0.08	0.31	16.91	0.06	0.04	101.09	1.21	15.82	101.21
OPAP-9	0.07	2.32	0.03	0.00	4.68	56.24	0.21	10.69	0.00	0.42	24.43	0.13	0.25	99.48	6.94	18.18	100.17
OPAP-10	0.03	0.24	0.05	0.01	7.61	60.99	0.18	12.33	0.01	0.22	18.57	0.08	0.14	100.45	4.22	14.77	100.87
OPAP-11	0.00	0.38	0.00	0.00	24.43	40.49	0.22	13.64	0.00	0.45	20.16	0.22	0.20	100.18	5.66	15.07	100.75
OPAP-12	0.09	1.75	0.01	0.00	8.67	56.79	0.20	13.41	0.01	0.03	18.69	0.14	0.13	99.92	4.45	14.69	100.37
OPAP-13	0.02	0.25	0.02	0.00	11.96	51.32	0.23	10.72	0.05	0.26	24.15	0.13	0.15	99.25	7.41	17.49	100.00
OPAP-14	0.36	0.51	0.00	0.02	20.15	41.19	0.25	15.22	0.02	0.14	22.09	0.23	0.02	100.20	9.97	13.12	101.20
OPAP-15	0.01	0.20	0.00	0.00	12.78	55.83	0.41	12.04	0.04	0.21	18.53	0.11	0.04	100.19	2.57	16.21	100.44
OPAP-16	0.36	0.33	0.00	0.01	19.81	40.00	0.24	14.84	0.00	0.13	23.81	0.15	0.06	99.75	11.54	13.43	100.91
OPAP-17	0.02	0.13	0.01	0.00	10.96	58.04	0.29	11.89	0.07	0.25	18.18	0.11	0.20	100.14	2.79	15.67	100.42
OPAP-18	0.03	0.74	0.01	0.00	13.21	54.15	0.31	13.51	0.02	0.39	17.61	0.08	0.17	100.24	3.83	14.16	100.62
OPAP-19	0.02	0.04	0.00	0.00	17.04	53.54	0.25	12.96	0.00	0.22	15.62	0.04	0.08	99.80	0.68	15.01	99.87
OPAP-20	0.02	0.32	0.00	0.00	14.14	47.43	0.19	11.42	0.00	0.26	25.30	0.18	0.26	99.51	9.47	16.79	100.46
OPAP-21	0.04	0.22	0.03	0.00	7.88	62.17	0.15	12.63	0.02	0.37	16.47	0.03	0.17	100.17	2.70	14.03	100.44
OPAP-22	0.02	0.95	0.00	0.00	15.16	53.09	0.28	14.28	0.01	0.31	16.17	0.16	0.13	100.55	2.89	13.57	100.84
OPAP-23	0.02	0.21	0.02	0.03	14.39	52.47	0.19	11.83	0.01	0.36	20.65	0.10	0.08	100.36	4.67	16.45	100.83
OPAP-24	0.01	0.10	0.02	0.03	16.15	54.93	0.21	13.72	0.01	0.08	15.12	0.08	0.11	100.57	1.20	14.05	100.69
OPAP-25	0.00	0.69	0.00	0.04	14.50	52.11	0.13	11.58	0.02	0.11	20.22	0.11	0.11	99.61	3.48	17.09	99.96
OPAP-26	0.00	0.07	0.02	0.00	17.05	54.48	0.17	14.79	0.01	0.10	13.71	0.12	0.12	100.63	1.47	12.38	100.78
OPAP-27	0.30	1.19	0.08	0.00	8.95	56.44	0.19	13.54	0.03	0.13	19.18	0.26	0.13	100.43	5.42	14.30	100.97
OPAP-28	0.00	0.05	0.00	0.02	14.40	54.53	0.36	11.81	0.03	0.23	18.21	0.12	0.13	99.88	2.02	16.40	100.09
OPAP-29	0.02	0.36	0.01	0.01	14.15	52.34	0.11	11.24	0.00	0.36	20.79	0.13	0.17	99.70	4.23	16.98	100.12
OPAP-30	0.01	0.18	0.01	0.00	13.15	54.72	0.18	13.46	0.03	0.32	17.95	0.07	0.11	100.19	4.80	13.63	100.67
OPAP-31	0.03	0.00	0.00	0.00	16.91	53.43	0.34	13.91	0.10	0.29	15.13	0.05	0.24	100.42	1.79	13.52	100.60
OPAP-32	0.03	0.40	0.00	0.04	14.04	54.21	0.30	12.55	0.06	0.26	17.73	0.05	0.25	99.92	2.59	15.40	100.18
OPAP-33	0.23	1.53	0.00	0.00	9.99	55.73	0.32	14.08	0.05	0.21	17.86	0.19	0.06	100.26	4.35	13.94	100.69
OPAP-34	0.01	0.21	0.06	0.04	13.71	56.60	0.23	12.16	0.09	0.36	17.08	0.01	0.28	100.85	1.39	15.83	100.98
OPAP-35	0.02	0.08	0.00	0.00	16.50	52.89	0.31	12.65	0.03	0.32	17.07	0.05	0.26	100.19	1.92	15.35	100.39
OPAP-36	0.01	0.13	0.02	0.00	9.16	61.63	0.13	11.54	0.05	0.23	16.77	0.04	0.19	99.90	1.17	15.72	100.02
OPAP-38	0.01	0.30	0.01	0.00	13.82	55.19	0.19	11.54	0.03	0.17	18.92	0.03	0.01	100.21	2.08	17.05	100.42
OPAP-39	0.21	2.19	0.03	0.00	8.81	53.81	0.15	13.79	0.01	0.45	20.62	0.27	0.09	100.42	7.00	14.33	101.12
OPAP-40	0.02	0.49	0.00	0.01	11.48	53.92	0.17	13.19	0.02	0.46	19.79	0.11	0.00	99.64	6.61	13.84	100.30
OPAP-41	0.00	0.02	0.02	0.00	8.06	62.39	0.11	11.34	0.00	0.38	17.14	0.07	0.10	99.65	1.72	15.59	99.82
OPAP-42	0.02	0.32	0.02	0.04	15.17	50.68	0.14	11.41	0.01	0.58	21.15	0.12	0.25	99.91	4.96	16.70	100.40
OPAP-43	0.22	0.61	0.00	0.01	15.81	33.98	0.10	14.44	0.06	0.36	32.31	0.36	0.14	98.40	22.11	12.42	100.61
OPAP-44	0.02	0.71	0.00	0.00	11.92	54.21	0.29	10.22	0.06	0.43	22.47	0.10	0.12	100.56	3.89	18.98	100.95
OPAP-45	0.01	0.01	0.00	0.01	17.50	52.18	0.28	13.69	0.07	0.22	16.16	0.09	0.11	100.34	2.40	14.01	100.58
OPAP-46	0.02	0.02	0.01	0.04	9.59	59.60	0.23	11.66	0.05	0.50	18.25	0.07	0.11	100.14	3.00	15.55	100.44
OPAP-47	0.02	0.28	0.01	0.02	15.07	52.84	0.12	11.49	0.05	0.50	19.70	0.07	0.05	100.22	3.21	16.81	100.54
OPAP-48	0.03	0.04	0.00	0.00	13.67	55.53	0.28	12.69	0.05	0.36	16.90	0.06	0.21	99.83	2.52	14.64	100.08
OPAP-49	0.01	0.22	0.02	0.03	13.85	55.70	0.30	12.13	0.03	0.33	17.09	0.06	0.10	99.87	1.35	15.87	100.01
OPAP-50	0.03	0.02	0.00	0.02	12.69	55.49	0.22	12.63	0.05	0.26	17.90	0.12	0.11	99.55	3.72	14.55	99.92
OPAP-51	0.02	0.80	0.01	0.00	10.01	52.89	0.25	8.87	0.01	0.56	25.11	0.00	0.12	98.64	5.45	20.21	99.18
OPAP-52	0.02	0.02	0.00	0.00	11.88	58.19	0.20	12.50	0.03	0.40	16.69	0.09	0.13	100.15	2.28	14.64	100.38
OPAP-53	0.03	0.78	0.02	0.01	15.74	52.78	0.29	13.06	0.00	0.25	16.69	0.04	0.13	99.82	1.49	15.35	99.97
OPAP-54	0.02	0.00	0.01	0.00	8.85	62.14	0.32	11.84	0.00	0.27	16.30	0.07	0.05	99.85	0.90	15.49	99.94
OPAP-55	0.01	0.11	0.01	0.00	13.80	53.59	0.16	12.76	0.00	0.34	18.82	0.12	0.07	99.80	4.70	14.59	100.27
OPAP-56	0.03	0.03	0.00	0.04	10.14	60.31	0.21	12.32	0.03	0.25	16.17	0.13	0.13	99.78	1.67	14.66	99.94
OPAP-57	0.02	0.10	0.00	0.00	6.58	60.62	0.29	11.21	0.08	0.30	20.34	0.14	0.12	99.81	4.94	15.90	100.31
OPAP-58	0.03	0.00	0.04	0.00	9.41	61.69	0.27	12.10	0.10	0.32	16.40	0.07	0.08	100.50	1.40	15.14	100.64
OPAP-59	0.04	0.18	0.02	0.00	12.96	55.40	0.26	11.98	0.02	0.36	18.50	0.06	0.17	99.96	2.94	15.86	100.25

OPAP. Chromite. continued

Sample	SiO2	TiO2	Nb2O5	Ta2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
OPAP-60	0.01	0.04	0.00	0.00	6.91	61.77	0.24	11.69	0.08	0.42	18.55	0.07	0.09	99.87	3.87	15.07	100.25
OPAP-61	0.01	3.29	0.00	0.00	2.66	51.68	0.59	9.04	0.01	0.29	30.77	0.25	0.11	98.71	10.10	21.67	99.73
OPAP-62	0.01	0.22	0.01	0.00	13.17	56.78	0.18	12.43	0.00	0.34	16.53	0.11	0.15	99.92	1.64	15.05	100.08
OPAP-63	0.06	0.98	0.01	0.00	9.82	57.04	0.29	13.41	0.00	0.25	17.72	0.09	0.01	99.70	3.99	14.14	100.10
OPAP-64	0.00	0.25	0.00	0.01	15.03	51.33	0.16	11.73	0.01	0.42	20.39	0.09	0.09	99.53	4.54	16.31	99.99
OPAP-65	0.00	0.00	0.00	0.02	15.32	53.58	0.29	12.05	0.06	0.08	17.66	0.06	0.13	99.27	1.87	15.98	99.45
OPAP-66	0.02	0.00	0.00	0.00	10.64	60.21	0.29	11.97	0.02	0.08	16.30	0.00	0.14	99.66	0.78	15.59	99.73
OPAP-67	0.04	0.42	0.05	0.01	14.62	51.52	0.18	11.46	0.02	0.26	21.04	0.16	0.15	99.92	4.41	17.08	100.36
OPAP-68	0.02	0.13	0.01	0.00	11.87	56.77	0.26	11.27	0.00	0.39	19.41	0.08	0.14	100.34	2.87	16.82	100.63
OPAP-69	0.08	2.71	0.00	0.04	8.19	55.05	0.26	13.56	0.00	0.28	19.01	0.23	0.03	99.45	4.50	14.96	99.90
OPAP-70	0.02	0.09	0.00	0.00	15.39	53.89	0.10	12.10	0.05	0.27	17.31	0.08	0.20	99.49	1.98	15.53	99.69
OPAP-71	0.22	0.94	0.03	0.01	8.81	57.32	0.38	12.73	0.07	0.21	18.98	0.20	0.03	99.94	4.11	15.28	100.35
OPAP-72	0.00	0.00	0.03	0.00	11.20	56.79	0.36	12.04	0.00	0.22	18.37	0.14	0.30	99.46	3.44	15.28	99.81
OPAP-73	0.02	0.13	0.02	0.00	12.13	56.86	0.18	13.31	0.10	0.31	16.19	0.08	0.09	99.40	3.15	13.35	99.72
OPAP-74	0.03	0.29	0.04	0.00	13.64	52.94	0.20	11.53	0.00	0.31	20.65	0.17	0.14	99.94	4.40	16.69	100.38
OPAP-75	0.04	0.63	0.01	0.01	9.64	56.56	0.22	12.40	0.05	0.28	18.90	0.09	0.11	98.94	4.54	14.81	99.39
OPAP-76	0.24	1.66	0.01	0.00	8.55	55.85	0.14	13.62	0.00	0.08	19.74	0.17	0.14	100.22	5.92	14.41	100.81
OPAP-77	0.03	0.02	0.03	0.00	11.93	57.91	0.23	12.63	0.05	0.32	16.50	0.08	0.23	99.97	2.30	14.43	100.20
OPAP-78	0.25	1.10	0.00	0.00	13.46	50.68	0.30	14.01	0.03	0.24	19.13	0.20	0.12	99.52	5.81	13.90	100.10
OPAP-79	0.01	0.10	0.02	0.00	12.36	54.09	0.16	13.31	0.07	0.30	18.74	0.12	0.13	99.42	6.01	13.34	100.02
OPAP-80	0.01	0.20	0.04	0.01	10.10	59.78	0.24	11.32	0.08	0.35	18.01	0.12	0.15	100.40	1.76	16.43	100.57
OPAP-81	0.07	2.62	0.01	0.00	8.37	54.55	0.42	13.02	0.00	0.12	20.05	0.12	0.01	99.36	4.25	16.22	99.79
OPAP-82	0.03	0.50	0.03	0.00	11.12	54.49	0.25	10.04	0.07	0.40	22.65	0.08	0.10	99.75	4.36	18.73	100.19
OPAP-83	0.00	0.44	0.03	0.01	11.43	57.80	0.22	13.26	0.02	0.22	16.00	0.02	0.18	99.64	2.38	13.86	99.88
OPAP-84	0.00	0.10	0.01	0.01	16.03	53.13	0.23	12.88	0.05	0.26	17.14	0.05	0.17	100.05	2.50	14.89	100.30
OPAP-86	0.00	0.47	0.00	0.00	10.94	55.33	0.26	11.52	0.02	0.15	20.57	0.13	0.13	99.52	4.51	16.51	99.97
OPAP-87	0.02	0.09	0.02	0.05	13.27	55.27	0.25	11.07	0.07	0.27	18.89	0.08	0.19	99.51	2.03	17.06	99.72
OPAP-88	0.02	0.53	0.02	0.00	17.38	48.64	0.19	11.70	0.00	0.09	21.05	0.18	0.14	99.95	4.07	17.39	100.36
OPAP-89	0.02	0.28	0.01	0.02	13.59	54.16	0.19	11.87	0.03	0.14	19.46	0.05	0.10	99.91	3.42	16.39	100.25
OPAP-90	0.04	0.95	0.00	0.00	9.75	56.08	0.27	12.63	0.01	0.14	19.38	0.10	0.18	99.53	4.72	15.13	100.00
OPAP-91	0.04	0.85	0.00	0.04	10.01	56.62	0.19	12.92	0.02	0.29	17.72	0.06	0.03	98.79	3.81	14.29	99.17
OPAP-92	0.01	0.14	0.00	0.00	15.42	53.84	0.23	12.25	0.02	0.34	17.41	0.03	0.03	99.72	1.82	15.78	99.90
OPAP-93	0.00	0.45	0.00	0.00	8.25	53.76	0.27	8.19	0.06	0.34	27.51	0.11	0.13	99.06	7.39	20.86	99.80
OPAP-94	0.00	0.00	0.04	0.00	14.36	55.32	0.29	12.39	0.04	0.20	16.60	0.13	0.13	99.51	1.49	15.26	99.66
OPAP-95	0.01	0.12	0.00	0.00	12.32	55.79	0.22	13.12	0.05	0.16	17.87	0.12	0.08	99.84	4.27	14.03	100.27
OPAP-96	0.02	0.74	0.02	0.00	10.09	53.53	0.27	11.36	0.00	0.19	22.71	0.18	0.10	99.20	6.53	16.83	99.86
OPAP-97	0.20	2.01	0.00	0.00	8.00	53.13	0.24	12.45	0.00	0.30	22.35	0.16	0.15	98.99	7.12	15.94	99.70
OPAP-98	0.03	0.76	0.00	0.00	13.50	52.23	0.22	10.66	0.00	0.22	21.57	0.02	0.12	99.33	3.44	18.47	99.67
OPAP-99	0.22	1.63	0.01	0.00	7.80	58.24	0.33	13.52	0.00	0.39	17.67	0.13	0.16	100.09	3.71	14.32	100.46
OPAP-100	0.03	0.52	0.03	0.00	14.21	52.97	0.28	11.62	0.07	0.34	19.34	0.14	0.22	99.77	2.93	16.71	100.06
OPAP-1*	0.03	0.53	0.00	0.01	14.97	54.02	0.33	13.50	0.01	0.42	15.96	0.08	0.20	100.08	1.98	14.18	100.27
OPAP-2*	0.00	0.62	0.00	0.04	10.45	54.07	0.35	8.52	0.03	0.40	24.45	0.13	0.16	99.22	3.90	20.94	99.61
OPAP-3*	0.05	3.46	0.03	0.01	8.34	53.34	0.31	12.83	0.00	0.22	21.76	0.18	0.13	100.66	5.03	17.23	101.16
OPAP-4*	0.01	0.38	0.00	0.00	12.20	55.58	0.25	10.68	0.03	0.29	20.66	0.06	0.11	100.25	2.89	18.06	100.54
OPAP-5*	0.02	0.42	0.03	0.04	15.17	49.87	0.23	11.23	0.00	0.29	22.78	0.08	0.05	100.21	5.50	17.83	100.76
OPAP-6*	0.26	1.13	0.02	0.00	16.11	49.19	0.26	15.45	0.01	0.19	17.62	0.27	0.11	100.61	5.69	12.50	101.18
OPAP-7*	0.04	0.45	0.03	0.00	9.57	53.77	0.38	9.76	0.00	0.21	25.77	0.15	0.05	100.16	6.96	19.51	100.86
OPAP-8*	0.03	0.05	0.00	0.05	14.13	55.43	0.31	12.99	0.05	0.09	17.07	0.04	0.06	100.29	2.40	14.92	100.53
OPAP-9*	0.00	0.06	0.00	0.00	9.71	60.90	0.25	12.04	0.06	0.21	16.70	0.00	0.18	100.11	1.61	15.25	100.27
OPAP-10*	0.01	0.31	0.00	0.00	10.37	54.57	0.23	10.72	0.05	0.33	22.91	0.09	0.27	99.85	6.26	17.28	100.48
OPAP-11*	0.01	0.04	0.00	0.09	7.91	63.23	0.24	11.27	0.00	0.22	17.21	0.03	0.16	100.41	1.00	16.31	100.51
OPAP-12*	0.14	2.11	0.00	0.01	8.59	58.80	0.26	14.00	0.05	0.08	16.68	0.16	0.05	100.91	2.42	14.51	101.16
OPAP-13*	0.00	0.21	0.00	0.04	11.34	56.91	0.08	11.28	0.01	0.18	19.62	0.13	0.24	100.03	3.50	16.47	100.38
OPAP-14*	0.04	0.32	0.02	0.00	12.00	53.70	0.11	12.47	0.05	0.28	20.50	0.12	0.01	99.63	6.19	14.93	100.25
OPAP-15*	0.27	1.11	0.00	0.00	16.01	49.64	0.26	15.50	0.02	0.00	17.34	0.15	0.03	100.33	5.22	12.65	100.85
OPAP-16*	0.02	0.42	0.03	0.00	11.87	54.99	0.32	10.32	0.03	0.31	21.65	0.09	0.15	100.21	3.32	18.66	100.54
OPAP-17*	0.01	0.03	0.00	0.04	16.13	54.41	0.17	13.39	0.02	0.32	15.61	0.02	0.19	100.34	1.73	14.06	100.52
OPAP-18*	0.03	0.09	0.01	0.00	14.18	52.53	0.12	11.71	0.04	0.20	20.68	0.14	0.20	99.93	4.97	16.21	100.43
OPAP-19*	0.03	0.04	0.00	0.00	16.41	55.31	0.08	13.79	0.01	0.26	14.57	0.11	0.19	100.79	1.19	13.49	100.91

OPAP. Chromite. continued

Sample	SiO2	TiO2	Nb2O5	Ta2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
OPAP-20*	0.02	0.01	0.00	0.00	10.90	60.78	0.18	12.67	0.05	0.10	15.31	0.12	0.18	100.33	0.99	14.42	100.43
OPAP-21*	0.05	2.52	0.00	0.02	7.45	56.73	0.42	12.99	0.01	0.25	19.50	0.13	0.08	100.17	3.88	16.01	100.56
OPAP-22*	0.00	0.09	0.00	0.02	10.35	58.93	0.15	12.43	0.03	0.35	17.56	0.05	0.15	100.10	3.35	14.55	100.44
OPAP-23*	0.03	3.31	0.00	0.01	1.53	47.46	0.66	6.88	0.00	0.50	37.83	0.11	0.11	98.44	14.38	24.89	99.88
OPAP-24*	0.01	0.24	0.01	0.00	16.18	51.55	0.25	12.04	0.06	0.26	19.20	0.12	0.06	99.97	3.14	16.37	100.29
OPAP-25*	0.01	0.16	0.00	0.00	9.48	61.21	0.24	11.69	0.05	0.04	16.83	0.09	0.18	99.98	1.04	15.89	100.08
OPAP-26*	0.02	0.00	0.03	0.00	16.28	53.61	0.36	13.61	0.03	0.00	15.62	0.07	0.18	99.81	1.64	14.14	99.97
OPAP-27*	0.02	0.88	0.00	0.00	10.85	55.75	0.28	12.62	0.08	0.24	19.44	0.10	0.13	100.38	4.51	15.38	100.83
OPAP-28*	0.02	0.15	0.02	0.03	10.86	54.51	0.33	10.09	0.03	0.16	23.56	0.09	0.10	99.94	5.33	18.76	100.48
OPAP-29*	0.02	0.36	0.00	0.00	18.47	45.73	0.24	13.48	0.01	0.18	20.65	0.12	0.15	99.42	6.75	14.58	100.10
OPAP-30*	0.01	0.00	0.00	0.03	18.54	52.26	0.18	14.29	0.00	0.33	14.28	0.10	0.15	100.17	1.47	12.96	100.32
OPAP-31*	0.01	0.03	0.00	0.05	10.92	60.56	0.23	12.61	0.00	0.20	15.55	0.02	0.09	100.27	0.90	14.74	100.35
OPAP-32*	0.26	1.08	0.00	0.00	15.93	49.31	0.25	15.47	0.03	0.23	17.25	0.15	0.12	100.09	5.58	12.23	100.65
OPAP-33*	0.01	0.18	0.00	0.03	13.32	55.53	0.06	12.15	0.00	0.30	17.82	0.11	0.14	99.65	2.83	15.28	99.93
OPAP-34*	0.00	0.25	0.00	0.03	10.00	59.74	0.25	12.24	0.07	0.13	17.19	0.00	0.09	99.98	2.10	15.30	100.19
OPAP-35*	0.01	0.22	0.00	0.00	14.85	53.06	0.13	11.77	0.01	0.28	19.35	0.13	0.22	100.02	3.43	16.26	100.36
OPAP-36*	0.03	0.42	0.00	0.05	13.58	55.93	0.19	13.83	0.05	0.13	15.97	0.06	0.19	100.42	2.70	13.54	100.69
OPAP-37*	0.03	0.09	0.00	0.00	12.77	53.17	0.26	11.24	0.14	0.26	21.61	0.12	0.07	99.75	5.33	16.81	100.28
OPAP-38*	0.00	0.06	0.00	0.00	7.27	62.41	0.14	11.26	0.02	0.32	18.57	0.06	0.14	100.25	2.99	15.88	100.55
OPAP-39*	0.01	0.17	0.05	0.02	11.19	56.70	0.20	11.23	0.03	0.24	19.88	0.04	0.26	100.02	3.52	16.72	100.37
OPAP-40*	0.02	0.17	0.01	0.00	14.91	55.11	0.32	12.88	0.00	0.33	16.01	0.03	0.15	99.93	1.22	14.92	100.06
OPAP-41*	0.01	0.19	0.01	0.00	13.24	55.69	0.14	11.53	0.00	0.17	18.96	0.07	0.14	100.15	2.54	16.67	100.41
OPAP-42*	0.01	0.33	0.00	0.01	8.48	50.76	0.21	8.71	0.06	0.33	29.79	0.10	0.15	98.93	10.96	19.93	100.02
OPAP-43*	0.02	0.11	0.00	0.00	13.24	55.38	0.28	12.78	0.02	0.29	17.83	0.16	0.18	100.29	3.50	14.68	100.64
OPAP-44*	0.02	0.23	0.01	0.04	14.26	54.55	0.26	12.09	0.00	0.31	17.81	0.05	0.12	99.74	2.03	15.99	99.95
OPAP-45*	0.02	0.00	0.03	0.00	7.86	63.45	0.32	11.34	0.03	0.16	17.15	0.07	0.12	100.56	0.89	16.35	100.65
OPAP-46*	0.01	0.25	0.01	0.00	13.25	56.17	0.17	12.20	0.03	0.19	17.79	0.10	0.09	100.25	2.29	15.73	100.47
OPAP-47*	0.00	0.00	0.00	0.00	10.76	60.86	0.17	12.37	0.00	0.37	16.04	0.06	0.19	100.82	1.38	14.80	100.96
OPAP-48*	0.02	0.17	0.00	0.00	17.29	53.73	0.11	14.20	0.00	0.09	14.28	0.08	0.13	100.10	1.22	13.19	100.22
OPAP-49*	0.18	2.02	0.00	0.01	8.71	58.03	0.24	13.61	0.03	0.21	16.32	0.14	0.07	99.56	2.03	14.49	99.77
OPAP-50*	0.01	0.17	0.02	0.00	19.09	47.50	0.19	12.75	0.00	0.25	19.94	0.09	0.09	100.10	4.65	15.76	100.57
OPAP-51*	0.01	0.18	0.00	0.00	7.58	62.49	0.16	11.54	0.00	0.07	18.47	0.10	0.14	100.75	2.73	16.02	101.02
OPAP-52*	0.03	0.14	0.01	0.00	9.43	59.12	0.29	11.34	0.06	0.34	18.61	0.00	0.12	99.50	2.67	16.21	99.76
OPAP-53*	0.00	0.50	0.00	0.00	10.36	56.53	0.22	11.70	0.05	0.05	20.14	0.10	0.13	99.78	4.27	16.29	100.20
OPAP-54*	0.02	0.22	0.02	0.00	15.59	51.42	0.17	11.59	0.04	0.18	20.44	0.18	0.09	99.96	5.96	16.88	100.36
OPAP-55*	0.03	1.08	0.00	0.00	14.02	53.03	0.33	11.42	0.08	0.39	19.96	0.09	0.24	100.66	2.39	17.80	100.90
OPAP-56*	0.01	0.02	0.02	0.03	9.61	61.54	0.14	11.85	0.02	0.30	16.29	0.01	0.08	99.92	1.06	15.34	100.02
OPAP-57*	0.02	0.38	0.00	0.00	12.76	55.00	0.12	11.27	0.02	0.39	20.07	0.04	0.12	100.19	3.46	16.96	100.54
OPAP-58*	0.04	0.03	0.01	0.03	17.45	53.17	0.08	14.59	0.05	0.20	14.20	0.08	0.16	100.08	2.10	12.31	100.30
OPAP-59*	0.01	0.09	0.00	0.00	13.97	56.68	0.15	12.85	0.05	0.21	16.10	0.09	0.15	100.36	1.67	14.60	100.52
OPAP-60*	0.03	0.66	0.01	0.00	11.87	52.04	0.15	11.17	0.02	0.39	22.74	0.09	0.07	99.23	6.35	17.02	99.87
OPAP-61*	0.00	0.24	0.00	0.00	11.44	57.95	0.20	11.74	0.00	0.36	18.00	0.15	0.15	100.23	2.31	15.92	100.46
OPAP-62*	0.06	0.14	0.00	0.06	12.57	55.61	0.31	13.47	0.04	0.30	17.25	0.10	0.12	100.03	3.97	13.67	100.43
OPAP-63*	0.04	0.40	0.02	0.04	11.91	55.74	0.37	10.90	0.03	0.30	19.92	0.11	0.07	99.85	2.38	17.78	100.09
OPAP-64*	0.00	0.26	0.03	0.00	16.18	50.64	0.13	11.77	0.01	0.31	20.28	0.16	0.00	99.77	4.10	16.58	100.18
OPAP-65*	0.02	0.43	0.00	0.00	15.27	51.90	0.17	11.65	0.03	0.27	19.50	0.07	0.09	99.39	3.07	16.74	99.70
OPAP-66*	0.01	0.37	0.00	0.00	13.59	54.47	0.20	13.32	0.03	0.36	17.19	0.08	0.14	99.77	3.67	13.89	100.14
OPAP-67*	0.00	0.17	0.02	0.06	15.19	52.41	0.12	12.31	0.00	0.21	19.21	0.07	0.14	99.92	3.93	15.67	100.32
OPAP-68*	0.03	0.42	0.00	0.06	15.56	49.83	0.31	11.24	0.02	0.12	21.83	0.11	0.26	99.80	4.50	17.78	100.25
OPAP-69*	0.30	1.09	0.00	0.00	15.86	49.00	0.28	15.24	0.07	0.23	17.15	0.18	0.04	99.46	5.23	12.45	99.98
OPAP-70*	0.01	0.03	0.05	0.01	16.49	53.86	0.30	13.13	0.04	0.00	16.55	0.09	0.14	100.70	1.57	15.14	100.86
OPAP-71*	0.02	0.26	0.00	0.00	9.00	53.73	0.29	8.97	0.00	0.45	26.11	0.09	0.12	99.04	7.17	19.66	99.76
OPAP-72*	0.02	0.60	0.01	0.00	8.08	53.10	0.15	9.72	0.08	0.53	26.03	0.16	0.08	98.56	8.79	18.12	99.44
OPAP-73*	0.01	0.24	0.01	0.01	14.25	53.43	0.16	11.82	0.01	0.30	19.17	0.16	0.25	99.82	3.50	16.02	100.18
OPAP-74*	0.04	0.04	0.00	0.00	8.32	61.46	0.19	11.60	0.04	0.31	17.51	0.05	0.03	99.59	2.25	15.49	99.82
OPAP-75*	0.02	0.24	0.00	0.00	14.00	56.71	0.24	13.07	0.00	0.30	15.45	0.06	0.18	100.28	1.08	14.48	100.39
OPAP-76*	0.00	0.10	0.00	0.04	11.16	57.14	0.23	11.52	0.03	0.32	18.86	0.04	0.08	99.51	3.04	16.13	99.82
OPAP-77*	0.01	0.24	0.02	0.00	16.10	51.08	0.21	11.99	0.00	0.41	19.13	0.14	0.10	99.41	3.39	16.07	99.75
OPAP-78*	0.02	3.64	0.01	0.00	5.02	52.93	0.54	10.70	0.05	0.62	25.66	0.24	0.06	99.49	6.69	19.64	100.16

Notes: * These chromite grains were picked as ilmenites.

OPAP. Ilmenite

Sample	SiO2	TiO2	Nb2O5	Ta2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total	ilmenite	geikelite	hematite	Total
OPAP-37*	0.00	50.71	0.00	0.00	0.02	0.16	0.00	0.18	0.07	2.03	46.21	0.00	0.00	99.38	3.42	43.13	99.72	95.86	0.72	3.42	100.00
OPAP-85*	0.03	50.32	0.04	0.00	0.00	0.04	0.00	0.50	0.08	3.64	44.30	0.08	0.07	99.11	4.22	40.51	99.53	93.56	2.06	4.38	100.00

Notes: * These ilmenite grains were mixed in with the OPAP chromite analyses; analyses done on mineral cores.

OPAP. Pyroxene

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
OPAP-4	48.26	0.66	7.75	0.13	11.93	19.94	0.23	9.98	0.02	1.01	0.03	99.95
OPAP-11	54.85	0.05	2.27	2.41	16.40	20.07	0.05	2.34	0.06	2.04	0.00	100.54
OPAP-17	52.82	0.24	2.13	0.20	17.34	17.74	0.21	9.16	0.04	0.15	0.00	100.02
OPAP-1	51.25	0.10	5.78	0.03	23.34	0.64	0.33	19.32	0.05	0.08	0.00	100.93
OPAP-2	51.91	0.39	1.49	0.07	21.03	0.53	0.51	24.30	0.00	0.02	0.00	100.25
OPAP-3	50.56	0.25	6.10	0.02	22.17	2.24	0.33	17.85	0.02	0.34	0.01	99.89
OPAP-5	54.10	0.22	1.07	0.04	21.93	5.02	0.34	17.70	0.04	0.05	0.00	100.51
OPAP-6	52.69	0.11	1.21	0.07	21.39	0.27	0.45	23.94	0.01	0.00	0.00	100.13
OPAP-7	52.25	0.03	1.74	0.11	21.27	0.40	0.47	24.24	0.00	0.02	0.03	100.56
OPAP-8	53.51	0.01	3.97	0.83	28.45	0.19	0.26	12.82	0.18	0.02	0.00	100.24
OPAP-9	52.97	0.29	1.30	0.00	19.85	9.89	0.30	16.01	0.00	0.08	0.00	100.69
OPAP-10	52.14	0.02	1.45	0.09	21.31	0.52	0.49	23.82	0.00	0.01	0.00	99.85
OPAP-12	52.53	0.27	1.09	0.01	19.58	9.02	0.33	16.49	0.03	0.08	0.00	99.43
OPAP-13	52.61	0.08	1.14	0.02	21.10	1.03	0.47	23.61	0.00	0.04	0.00	100.09
OPAP-14	52.46	0.01	1.28	0.07	21.16	0.29	0.49	24.19	0.00	0.00	0.00	99.95
OPAP-15	51.82	0.02	2.78	0.10	22.41	0.25	0.40	22.19	0.09	0.02	0.00	100.08
OPAP-16	52.51	0.32	1.40	0.00	18.67	12.91	0.31	14.07	0.02	0.10	0.00	100.32
OPAP-18	53.37	0.22	3.81	0.32	28.46	0.75	0.24	12.95	0.02	0.04	0.02	100.21
OPAP-19	57.13	0.00	1.99	0.43	35.51	0.26	0.15	4.76	0.12	0.01	0.00	100.37
OPAP-20	57.88	0.03	0.89	0.50	36.17	0.27	0.15	4.31	0.10	0.07	0.02	100.39
OPAP-21	57.88	0.00	0.96	0.43	35.95	0.27	0.12	4.54	0.08	0.05	0.00	100.27
OPAP-22	58.09	0.00	0.67	0.33	36.58	0.18	0.06	3.87	0.10	0.04	0.00	99.92
OPAP-23	58.17	0.02	0.58	0.25	36.32	0.14	0.09	4.28	0.11	0.08	0.00	100.03
OPAP-24	56.80	0.10	1.30	0.71	33.90	1.53	0.13	5.39	0.11	0.14	0.01	100.11
OPAP-25	57.83	0.00	0.85	0.42	36.50	0.21	0.17	4.00	0.06	0.03	0.00	100.09
OPAP-26	56.23	0.00	2.67	0.64	35.13	0.12	0.13	5.10	0.06	0.03	0.00	100.10
OPAP-27	57.53	0.02	0.87	0.36	35.96	0.17	0.08	5.10	0.08	0.01	0.00	100.18
OPAP-28	58.37	0.00	0.89	0.44	36.68	0.21	0.09	4.10	0.13	0.03	0.00	100.94
OPAP-29	58.15	0.01	0.70	0.38	36.58	0.20	0.07	3.84	0.13	0.04	0.00	100.10
OPAP-30	56.47	0.20	0.82	0.16	33.24	0.83	0.16	7.56	0.02	0.10	0.01	99.59
OPAP-31	56.30	0.00	2.88	0.69	34.58	0.82	0.14	4.80	0.04	0.03	0.00	100.27
OPAP-32	56.57	0.10	1.34	0.57	33.75	1.33	0.09	5.79	0.15	0.16	0.00	99.84
OPAP-33	56.70	0.00	1.12	0.69	34.12	1.57	0.10	5.30	0.13	0.02	0.00	99.75
OPAP-34	57.77	0.00	1.11	0.47	35.89	0.20	0.10	4.76	0.06	0.04	0.00	100.40
OPAP-35	58.28	0.01	0.85	0.38	36.43	0.24	0.14	4.07	0.11	0.04	0.02	100.57
OPAP-36	58.02	0.03	0.88	0.45	36.91	0.22	0.09	4.01	0.13	0.05	0.00	100.78
OPAP-37	58.01	0.01	0.64	0.24	35.91	0.15	0.08	4.71	0.08	0.02	0.00	99.86
OPAP-38	57.96	0.00	1.74	0.36	35.86	0.15	0.16	4.75	0.06	0.01	0.00	101.04
OPAP-39	58.04	0.00	0.84	0.36	36.26	0.16	0.13	4.89	0.08	0.02	0.00	100.79
OPAP-40	57.78	0.03	1.17	0.43	35.72	0.31	0.16	4.98	0.06	0.01	0.01	100.65
OPAP-41	58.21	0.00	0.87	0.43	36.65	0.23	0.07	3.86	0.11	0.04	0.00	100.47
OPAP-42	58.12	0.03	0.65	0.32	36.56	0.24	0.09	4.29	0.17	0.07	0.00	100.54
OPAP-43	56.56	0.00	3.32	0.74	34.90	0.51	0.12	4.47	0.05	0.03	0.01	100.70
OPAP-44	57.49	0.00	1.09	0.26	36.00	0.17	0.13	4.71	0.08	0.02	0.00	99.94
OPAP-45	56.70	0.11	1.41	0.64	33.75	1.33	0.12	5.81	0.08	0.16	0.00	100.12
OPAP-46	58.13	0.01	0.71	0.40	36.67	0.21	0.09	3.98	0.06	0.04	0.00	100.28
OPAP-47	57.20	0.00	1.94	0.32	35.50	0.23	0.14	4.62	0.10	0.02	0.00	100.06
OPAP-48	55.33	0.01	3.22	1.64	34.95	0.13	0.13	4.98	0.06	0.00	0.00	100.45
OPAP-49	57.11	0.00	2.14	0.53	34.92	0.77	0.11	4.67	0.08	0.04	0.00	100.37
OPAP-50	57.95	0.00	0.76	0.40	36.20	0.23	0.09	3.86	0.11	0.04	0.00	99.64
OPAP-51	57.68	0.00	1.33	0.48	35.45	0.44	0.12	4.73	0.00	0.00	0.00	100.22
OPAP-52	57.31	0.14	0.88	0.67	35.49	0.59	0.10	4.54	0.13	0.13	0.01	100.00
OPAP-53	58.07	0.03	0.91	0.39	36.36	0.21	0.14	3.88	0.04	0.05	0.00	100.09
OPAP-54	56.92	0.03	1.75	0.73	35.57	0.53	0.17	4.28	0.02	0.03	0.00	100.02
OPAP-55	57.22	0.00	1.92	0.31	35.71	0.28	0.14	4.82	0.10	0.01	0.00	100.50

OPAP. Pyroxene. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
OPAP-56	57.19	0.00	1.71	0.34	35.54	0.22	0.10	4.82	0.10	0.01	0.00	100.03
OPAP-57	57.04	0.02	1.87	0.36	34.95	0.89	0.13	4.75	0.13	0.04	0.01	100.20
OPAP-58	58.33	0.01	0.66	0.30	36.68	0.24	0.06	3.99	0.06	0.03	0.01	100.37
OPAP-59	58.32	0.01	0.79	0.32	36.63	0.21	0.11	3.97	0.13	0.04	0.00	100.54
OPAP-60	56.66	0.10	1.43	0.65	33.78	1.37	0.12	5.92	0.14	0.16	0.00	100.33
OPAP-61	58.47	0.00	0.92	0.39	36.47	0.20	0.12	4.00	0.13	0.03	0.00	100.74
OPAP-62	57.37	0.01	2.07	0.39	35.74	0.37	0.15	4.70	0.11	0.02	0.00	100.93
OPAP-63	57.32	0.00	1.98	0.31	34.96	1.04	0.14	4.66	0.03	0.04	0.00	100.48
OPAP-64	56.94	0.00	2.35	0.35	35.04	0.88	0.12	4.77	0.10	0.03	0.02	100.60
OPAP-65	56.38	0.01	2.74	0.74	35.33	0.18	0.18	4.89	0.10	0.02	0.00	100.56
OPAP-66	57.57	0.00	2.05	0.28	35.78	0.30	0.14	4.67	0.10	0.02	0.00	100.90
OPAP-67	56.55	0.00	2.82	0.75	34.61	0.67	0.11	4.70	0.12	0.11	0.00	100.45
OPAP-68	57.23	0.00	2.14	0.36	34.92	1.05	0.12	4.72	0.07	0.05	0.02	100.68
OPAP-69	57.15	0.01	1.87	0.61	35.35	0.46	0.17	4.91	0.10	0.04	0.02	100.68
OPAP-70	57.38	0.01	1.81	0.67	35.79	0.47	0.13	4.52	0.14	0.02	0.00	100.96
OPAP-71	57.32	0.02	1.98	0.32	35.56	0.22	0.14	4.73	0.10	0.02	0.00	100.42
OPAP-72	57.11	0.03	2.04	0.39	35.54	0.15	0.13	4.67	0.14	0.01	0.00	100.21
OPAP-73	57.06	0.01	1.78	0.49	35.58	0.49	0.14	4.43	0.00	0.04	0.00	100.02
OPAP-74	58.06	0.02	0.94	0.41	36.65	0.24	0.09	3.94	0.07	0.04	0.00	100.45
OPAP-75	58.06	0.01	0.73	0.39	36.59	0.17	0.10	3.99	0.10	0.04	0.00	100.18
OPAP-76	58.00	0.00	0.88	0.46	36.39	0.20	0.04	3.97	0.13	0.04	0.00	100.13
OPAP-77	57.30	0.04	0.66	0.38	35.15	0.23	0.16	5.88	0.07	0.06	0.01	99.93
OPAP-78	57.93	0.03	0.90	0.45	35.88	0.24	0.16	4.73	0.06	0.05	0.00	100.42
OPAP-79	56.21	0.00	3.10	0.70	34.95	0.38	0.12	4.67	0.10	0.02	0.00	100.26
OPAP-80	57.89	0.01	0.82	0.40	36.55	0.18	0.08	3.93	0.09	0.04	0.00	100.00
OPAP-81	56.41	0.00	3.08	0.71	33.78	2.12	0.14	4.46	0.01	0.08	0.00	100.80
OPAP-82	56.70	0.01	2.63	0.61	34.88	0.54	0.14	4.78	0.08	0.01	0.00	100.37
OPAP-83	56.99	0.00	1.86	0.28	35.17	0.60	0.09	4.71	0.14	0.03	0.00	99.85
OPAP-84	56.33	0.00	2.87	0.66	34.41	1.09	0.14	4.57	0.03	0.04	0.00	100.14
OPAP-85	56.85	0.10	1.51	0.73	33.84	1.30	0.17	5.47	0.14	0.22	0.00	100.33
OPAP-86	55.91	0.01	2.98	1.16	35.27	0.18	0.11	4.93	0.08	0.02	0.00	100.65
OPAP-87	57.05	0.11	1.40	0.59	33.65	1.38	0.15	5.75	0.10	0.16	0.00	100.35
OPAP-88	57.47	0.01	1.99	0.48	35.67	0.17	0.09	4.77	0.14	0.01	0.01	100.82
OPAP-89	58.04	0.00	0.98	0.43	35.91	0.42	0.11	4.51	0.07	0.07	0.00	100.55
OPAP-90	57.55	0.02	1.09	0.43	35.76	0.23	0.14	4.48	0.08	0.07	0.00	99.85
OPAP-91	55.83	0.01	4.04	0.78	34.56	0.36	0.14	4.52	0.04	0.03	0.00	100.31
OPAP-92	55.41	0.01	4.84	0.87	32.71	2.00	0.09	4.49	0.05	0.09	0.00	100.57
OPAP-93	57.64	0.10	0.44	0.23	35.24	0.24	0.14	6.13	0.12	0.08	0.00	100.37

OPAP. Olivine

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
OPAP-1	40.64	0.00	0.00	0.16	49.73	0.11	0.13	8.80	0.36	0.00	0.00	99.92
OPAP-2	40.85	0.03	0.00	0.13	49.70	0.09	0.11	8.77	0.28	0.02	0.00	99.99
OPAP-3	40.49	0.07	0.00	0.00	48.52	0.00	0.15	10.33	0.34	0.00	0.00	99.90
OPAP-4	41.09	0.03	0.00	0.05	50.47	0.00	0.09	7.94	0.35	0.00	0.01	100.03
OPAP-5	41.11	0.00	0.03	0.14	49.75	0.09	0.09	8.80	0.38	0.01	0.01	100.40
OPAP-6	40.88	0.02	0.02	0.16	49.38	0.09	0.11	8.48	0.42	0.02	0.00	99.58

Peddie. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Peddie-gar-1	purple	41.68	0.65	19.33	4.87	20.00	5.68	0.35	7.03	0.02	0.05	0.01	99.67	Cr-pyrope
Peddie-gar-2	purple	41.50	0.74	20.51	2.84	20.03	5.19	0.31	8.56	0.00	0.06	0.00	99.73	Cr-pyrope
Peddie-gar-3	purple	41.49	0.19	18.43	6.90	20.25	5.65	0.28	6.96	0.00	0.02	0.00	100.17	Cr-pyrope
Peddie-gar-4	purple	41.59	0.76	20.50	2.86	20.13	5.17	0.32	8.29	0.00	0.06	0.00	99.69	Cr-pyrope
Peddie-gar-5	purple	41.91	0.23	19.51	5.43	20.89	5.03	0.29	6.80	0.00	0.03	0.01	100.13	Cr-pyrope
Peddie-gar-6	purple	41.61	0.78	20.61	2.92	20.24	5.19	0.31	8.55	0.04	0.04	0.00	100.29	Cr-pyrope
Peddie-gar-7	purple	41.63	0.81	20.57	2.81	20.23	5.31	0.32	8.38	0.01	0.04	0.01	100.11	Cr-pyrope
Peddie-gar-8	purple	41.93	0.22	19.54	5.34	20.74	5.18	0.31	6.91	0.00	0.04	0.00	100.21	Cr-pyrope
Peddie-gar-9	purple	41.75	0.16	18.46	6.63	20.27	5.63	0.30	6.70	0.04	0.03	0.00	99.98	Cr-pyrope
Peddie-gar-10	purple	41.67	0.23	19.67	5.12	20.63	5.07	0.29	6.91	0.02	0.03	0.00	99.64	Cr-pyrope
Peddie-gar-11	purple	41.46	0.25	19.49	5.18	20.72	5.02	0.34	6.84	0.00	0.04	0.01	99.35	Cr-pyrope
Peddie-gar-12	purple	41.85	0.20	19.63	5.25	20.88	4.97	0.31	6.85	0.03	0.03	0.00	100.00	Cr-pyrope
Peddie-gar-13	purple	41.48	0.65	19.49	4.69	20.38	5.63	0.34	7.03	0.00	0.04	0.00	99.72	Cr-pyrope
Peddie-gar-14	purple	41.39	0.64	19.47	4.73	20.11	5.67	0.31	7.19	0.00	0.06	0.00	99.57	Cr-pyrope
Peddie-gar-15	purple	41.62	0.18	18.21	6.57	19.97	5.72	0.32	6.64	0.00	0.02	0.00	99.26	Cr-pyrope
Peddie-gar-16	purple	41.59	0.26	19.48	5.28	20.67	5.08	0.28	7.16	0.04	0.03	0.00	99.87	Cr-pyrope
Peddie-gar-17	purple	41.64	0.76	20.22	2.97	20.32	5.18	0.34	8.40	0.01	0.05	0.00	99.89	Cr-pyrope
Peddie-gar-18	purple	41.87	0.80	20.50	2.74	20.28	5.16	0.31	8.29	0.00	0.06	0.00	100.00	Cr-pyrope
Peddie-gar-19	purple	41.72	0.19	18.60	6.57	20.23	5.67	0.32	6.89	0.00	0.02	0.00	100.22	Cr-pyrope
Peddie-gar-20	purple	41.57	0.96	20.89	2.05	20.31	4.67	0.42	9.31	0.01	0.10	0.00	100.30	Cr-pyrope
Peddie-gar-21	purple	41.70	0.16	18.48	6.75	20.36	5.64	0.34	6.89	0.07	0.02	0.00	100.42	Cr-pyrope
Peddie-gar-22	purple	41.76	0.91	20.63	2.41	20.01	5.25	0.32	8.61	0.02	0.07	0.01	99.98	Cr-pyrope
Peddie-gar-23	purple	41.49	0.68	19.52	4.99	20.26	5.66	0.37	7.02	0.03	0.06	0.00	100.08	Cr-pyrope
Peddie-gar-24	purple	41.70	0.20	18.11	6.56	20.18	5.59	0.36	6.76	0.03	0.03	0.01	99.53	Cr-pyrope
Peddie-gar-25	purple	41.53	0.82	20.43	2.94	20.24	5.28	0.29	8.37	0.04	0.05	0.01	99.99	Cr-pyrope
Peddie-gar-26	purple	41.51	0.90	20.70	2.41	20.23	5.24	0.29	8.43	0.03	0.05	0.00	99.78	Cr-pyrope
Peddie-gar-27	purple	41.52	0.62	19.51	4.92	20.25	5.60	0.33	7.24	0.02	0.05	0.00	100.06	Cr-pyrope
Peddie-gar-28	purple	41.91	0.29	20.07	4.47	20.95	5.22	0.35	6.90	0.02	0.04	0.00	100.21	Cr-pyrope
Peddie-gar-29	purple	41.28	0.28	18.11	6.98	20.33	5.75	0.29	6.96	0.00	0.02	0.00	100.00	Cr-pyrope
Peddie-gar-30	purple	41.56	0.15	18.49	6.76	20.35	5.66	0.30	6.92	0.03	0.01	0.00	100.24	Cr-pyrope
Peddie-gar-31	purple	41.71	0.24	19.56	5.01	20.88	5.02	0.33	6.69	0.00	0.02	0.00	99.47	Cr-pyrope
Peddie-gar-32	purple	41.32	0.37	18.31	6.67	20.05	5.74	0.34	6.84	0.00	0.04	0.00	99.67	Cr-pyrope
Peddie-gar-33	purple	41.56	0.38	19.45	5.56	20.61	5.10	0.30	7.21	0.00	0.03	0.00	100.20	Cr-pyrope
Peddie-gar-34	purple	41.56	0.67	19.35	4.95	20.27	5.67	0.33	7.06	0.02	0.05	0.00	99.95	Cr-pyrope
Peddie-gar-35	purple	41.98	0.25	19.75	5.46	21.00	5.17	0.27	7.05	0.02	0.03	0.00	100.99	Cr-pyrope
Peddie-gar-36	purple	41.70	0.28	19.56	5.07	20.72	5.11	0.35	7.12	0.05	0.04	0.00	100.00	Cr-pyrope
Peddie-gar-37	purple	41.68	0.70	19.32	4.77	20.26	5.75	0.33	6.91	0.03	0.05	0.00	99.79	Cr-pyrope
Peddie-gar-38	purple	41.63	0.68	19.35	4.81	20.21	5.78	0.34	7.33	0.00	0.06	0.00	100.19	Cr-pyrope
Peddie-gar-39	purple	41.46	0.63	19.30	5.08	20.51	5.34	0.36	7.17	0.01	0.06	0.00	99.91	Cr-pyrope
Peddie-gar-40	purple	41.92	0.56	21.22	2.56	21.27	4.45	0.26	7.55	0.05	0.06	0.00	99.91	Cr-pyrope
Peddie-gar-41	purple	41.58	0.67	19.40	4.90	20.18	5.73	0.33	6.95	0.00	0.05	0.00	99.80	Cr-pyrope
Peddie-gar-42	purple	41.54	0.75	20.40	2.80	20.14	5.28	0.30	8.38	0.00	0.06	0.00	99.65	Cr-pyrope
Peddie-gar-43	purple	41.24	0.22	18.39	6.81	20.21	5.78	0.33	6.96	0.04	0.04	0.00	100.02	Cr-pyrope
Peddie-gar-44	purple	41.22	0.33	18.07	6.67	20.00	5.80	0.34	6.75	0.05	0.03	0.00	99.26	Cr-pyrope
Peddie-gar-45	purple	41.64	0.67	19.34	4.96	20.19	5.60	0.31	7.38	0.03	0.04	0.00	100.17	Cr-pyrope
Peddie-gar-46	purple	41.60	0.62	19.35	4.77	20.21	5.70	0.31	7.06	0.00	0.05	0.00	99.67	Cr-pyrope
Peddie-gar-47	purple	41.77	0.67	19.50	4.70	20.35	5.66	0.36	7.28	0.00	0.05	0.00	100.33	Cr-pyrope
Peddie-gar-48	purple	41.61	0.21	19.59	5.40	20.87	5.08	0.29	6.70	0.01	0.03	0.00	99.80	Cr-pyrope
Peddie-gar-49	purple	41.59	0.64	19.48	4.84	20.40	5.67	0.30	6.91	0.05	0.06	0.00	99.93	Cr-pyrope
Peddie-gar-50	purple	41.60	0.25	19.52	5.37	20.82	5.14	0.29	6.91	0.00	0.02	0.00	99.93	Cr-pyrope
Peddie-gar-51	purple	41.93	0.68	21.12	2.58	21.09	4.68	0.30	7.43	0.03	0.07	0.00	99.91	Cr-pyrope
Peddie-gar-52	purple	41.89	0.76	21.10	2.55	21.17	4.69	0.31	7.53	0.01	0.08	0.01	100.12	Cr-pyrope
Peddie-gar-53	purple	41.76	0.79	20.19	2.90	20.21	5.16	0.30	8.48	0.00	0.05	0.00	99.84	Cr-pyrope
Peddie-gar-54	purple	41.75	0.24	19.48	5.25	20.71	5.09	0.25	6.71	0.01	0.03	0.00	99.53	Cr-pyrope
Peddie-gar-55	purple	41.33	0.60	19.31	4.89	20.31	5.76	0.30	6.97	0.00	0.05	0.00	99.51	Cr-pyrope
Peddie-gar-56	purple	42.13	0.52	21.41	2.92	20.76	4.86	0.32	7.79	0.04	0.05	0.00	100.80	Cr-pyrope

Peddie. Garnet. continued

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Peddie-gar-57	purple	41.51	0.66	19.44	4.83	20.36	5.69	0.30	6.99	0.00	0.04	0.00	99.83	Cr-pyrope
Peddie-gar-58	purple	41.95	0.54	20.98	2.80	21.17	4.44	0.27	7.58	0.02	0.07	0.01	99.81	Cr-pyrope
Peddie-gar-59	purple	41.54	0.26	19.43	5.32	20.62	5.07	0.25	6.96	0.00	0.03	0.00	99.48	Cr-pyrope
Peddie-gar-60	purple	41.60	0.77	20.65	2.66	20.18	5.13	0.34	8.39	0.00	0.06	0.00	99.77	Cr-pyrope
Peddie-gar-61	purple	41.55	0.74	20.36	2.98	20.14	5.16	0.26	8.44	0.00	0.05	0.00	99.70	Cr-pyrope
Peddie-gar-62	purple	41.74	0.23	19.53	5.29	20.83	5.06	0.33	6.90	0.01	0.03	0.00	99.94	Cr-pyrope
Peddie-gar-63	purple	42.00	0.21	19.59	4.90	20.92	5.04	0.30	6.81	0.00	0.03	0.00	99.80	Cr-pyrope
Peddie-gar-65	purple	41.86	0.78	20.47	2.87	20.18	5.19	0.28	8.39	0.00	0.04	0.00	100.04	Cr-pyrope
Peddie-gar-66	purple	41.82	0.24	19.54	5.43	20.81	5.12	0.28	6.92	0.00	0.03	0.00	100.17	Cr-pyrope
Peddie-gar-67	purple	41.62	0.81	20.41	2.89	20.13	5.13	0.31	8.50	0.03	0.06	0.00	99.88	Cr-pyrope
Peddie-gar-68	purple	41.46	0.18	18.30	6.51	19.96	5.74	0.30	6.93	0.03	0.02	0.00	99.42	Cr-pyrope
Peddie-gar-69	purple	41.73	0.76	20.53	2.66	20.31	5.23	0.28	8.50	0.01	0.05	0.00	100.06	Cr-pyrope
Peddie-gar-70	purple	41.61	0.22	19.50	5.27	20.85	4.98	0.33	6.66	0.02	0.04	0.00	99.48	Cr-pyrope
Peddie-gar-71	purple	41.31	0.43	18.43	6.73	20.44	5.77	0.29	6.88	0.00	0.03	0.00	100.32	Cr-pyrope
Peddie-gar-72	purple	41.35	0.25	19.40	5.36	20.65	5.05	0.32	6.73	0.00	0.03	0.00	99.13	Cr-pyrope
Peddie-gar-73	purple	41.68	0.22	19.54	5.43	20.94	5.01	0.33	6.94	0.05	0.03	0.00	100.17	Cr-pyrope
Peddie-gar-74	purple	41.52	0.80	20.43	2.83	20.02	5.21	0.23	8.32	0.02	0.06	0.00	99.44	Cr-pyrope
Peddie-gar-75	purple	41.37	0.58	19.34	4.99	20.51	5.16	0.30	7.03	0.05	0.06	0.00	99.38	Cr-pyrope
Peddie-gar-76	red	41.66	0.38	19.66	5.07	20.75	5.09	0.31	6.94	0.00	0.03	0.00	99.89	Cr-pyrope
Peddie-gar-77	red	41.81	0.31	19.46	5.32	20.67	5.13	0.26	7.07	0.00	0.03	0.00	100.06	Cr-pyrope
Peddie-gar-78	red	41.78	0.95	20.97	1.85	19.98	4.64	0.33	9.33	0.05	0.11	0.01	99.98	Pyrope
Peddie-gar-79	red	41.70	0.59	21.19	2.61	21.03	4.46	0.22	7.23	0.02	0.07	0.01	99.14	Cr-pyrope
Peddie-gar-80	red	41.94	0.51	21.06	2.78	21.48	4.40	0.24	7.57	0.00	0.06	0.00	100.04	Cr-pyrope
Peddie-gar-81	red	41.43	0.75	20.43	2.86	20.03	5.16	0.34	8.36	0.01	0.04	0.00	99.41	Cr-pyrope
Peddie-gar-82	red	41.18	0.72	20.15	3.26	20.30	4.56	0.30	8.64	0.05	0.09	0.00	99.25	Cr-pyrope
Peddie-gar-83	red	41.83	0.63	21.00	2.63	20.91	4.56	0.32	7.54	0.07	0.07	0.00	99.56	Cr-pyrope
Peddie-gar-84	red	41.69	0.68	19.43	4.71	20.27	5.71	0.35	6.94	0.03	0.05	0.00	99.87	Cr-pyrope
Peddie-gar-85	red	41.53	0.70	19.61	4.84	20.39	5.72	0.27	7.16	0.02	0.06	0.00	100.31	Cr-pyrope
Peddie-gar-86	red	41.78	0.81	20.49	2.78	20.13	5.23	0.27	8.32	0.01	0.05	0.00	99.86	Cr-pyrope
Peddie-gar-87	red	41.89	0.49	20.80	3.11	21.21	4.34	0.33	7.48	0.00	0.06	0.00	99.72	Cr-pyrope
Peddie-gar-88	red	41.58	0.67	19.46	4.44	20.16	5.69	0.32	7.11	0.04	0.04	0.00	99.50	Cr-pyrope
Peddie-gar-89	red	41.49	0.65	19.36	4.94	20.14	5.70	0.32	7.10	0.00	0.04	0.00	99.76	Cr-pyrope
Peddie-gar-90	red	41.45	0.31	19.50	5.19	20.54	5.13	0.30	7.03	0.07	0.04	0.00	99.55	Cr-pyrope
Peddie-gar-91	red	41.82	0.32	19.39	5.29	20.75	5.07	0.28	6.78	0.02	0.03	0.01	99.75	Cr-pyrope
Peddie-gar-92	red	41.59	0.70	19.36	4.53	20.27	5.71	0.29	7.21	0.00	0.05	0.01	99.73	Cr-pyrope
Peddie-gar-93	red	41.58	0.76	20.63	2.84	20.32	5.24	0.32	8.46	0.05	0.05	0.01	100.26	Cr-pyrope
Peddie-gar-94	red	41.62	0.20	18.49	6.78	20.10	5.74	0.26	6.73	0.02	0.02	0.01	99.96	Cr-pyrope
Peddie-gar-95	red	42.05	0.50	21.06	3.01	21.39	4.35	0.27	7.48	0.03	0.06	0.00	100.21	Cr-pyrope
Peddie-gar-96	red	41.34	0.75	20.45	2.70	20.28	5.27	0.34	8.31	0.00	0.04	0.00	99.48	Cr-pyrope
Peddie-gar-97	red	41.98	0.54	21.04	2.76	21.28	4.43	0.28	7.62	0.01	0.05	0.00	99.99	Cr-pyrope
Peddie-gar-98	red	41.93	0.51	20.99	2.82	21.26	4.43	0.24	7.42	0.04	0.06	0.00	99.69	Cr-pyrope
Peddie-gar-99	red	41.83	0.52	21.32	2.54	21.11	4.41	0.31	7.65	0.01	0.06	0.00	99.76	Cr-pyrope
Peddie-gar-100	red	41.46	0.66	19.34	4.88	20.25	5.71	0.31	7.18	0.02	0.06	0.00	99.87	Cr-pyrope
Peddie-gar-101	red	41.75	0.28	19.53	5.43	20.72	5.11	0.29	6.94	0.01	0.02	0.00	100.08	Cr-pyrope
Peddie-gar-102	red	41.56	0.72	19.62	4.77	20.38	5.71	0.36	6.96	0.04	0.06	0.00	100.17	Cr-pyrope
Peddie-gar-103	red	41.89	0.63	21.12	2.66	20.94	4.59	0.34	7.50	0.00	0.06	0.00	99.74	Cr-pyrope
Peddie-gar-104	red	41.69	0.78	20.42	2.98	20.17	5.22	0.34	8.47	0.01	0.06	0.01	100.13	Cr-pyrope
Peddie-gar-105	red	41.33	0.66	19.42	4.88	20.05	5.71	0.29	7.11	0.08	0.05	0.00	99.58	Cr-pyrope
Peddie-gar-106	red	41.70	0.78	20.47	2.81	20.25	5.27	0.31	8.59	0.00	0.06	0.00	100.23	Cr-pyrope
Peddie-gar-107	red	41.69	0.82	20.53	2.59	20.21	5.21	0.24	8.64	0.00	0.05	0.00	100.00	Cr-pyrope
Peddie-gar-108	red	41.97	0.54	20.95	3.08	21.12	4.44	0.34	7.69	0.00	0.06	0.00	100.19	Cr-pyrope
Peddie-gar-109	red	41.47	0.80	20.57	2.53	20.15	5.21	0.29	8.54	0.08	0.04	0.00	99.68	Cr-pyrope
Peddie-gar-110	red	41.65	1.03	20.78	1.92	19.85	4.79	0.35	9.31	0.00	0.09	0.00	99.79	Pyrope
Peddie-gar-111	red	41.96	0.54	20.94	2.85	21.33	4.36	0.29	7.73	0.05	0.06	0.00	100.11	Cr-pyrope
Peddie-gar-112	red	41.93	0.43	20.85	3.16	21.37	4.73	0.28	7.03	0.02	0.04	0.00	99.84	Cr-pyrope
Peddie-gar-113	red	41.52	0.80	20.59	2.71	20.21	5.21	0.27	8.52	0.00	0.05	0.00	99.88	Cr-pyrope

Peddie. Garnet. continued

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Peddie-gar-114	red	41.39	0.68	19.46	4.77	20.28	5.64	0.35	6.99	0.00	0.05	0.00	99.59	Cr-pyrope
Peddie-gar-115	red	41.68	0.71	20.44	3.10	20.54	4.52	0.30	8.63	0.03	0.09	0.00	100.05	Cr-pyrope
Peddie-gar-116	red	41.82	0.69	21.22	2.70	21.15	4.52	0.31	7.50	0.00	0.07	0.00	99.98	Cr-pyrope
Peddie-gar-117	red	41.82	0.71	20.59	2.80	20.69	4.29	0.37	8.97	0.01	0.08	0.00	100.33	Cr-pyrope
Peddie-gar-118	red	42.03	0.50	21.13	2.92	21.25	4.42	0.31	7.58	0.00	0.07	0.01	100.20	Cr-pyrope
Peddie-gar-119	red	41.56	0.77	20.49	2.75	20.03	5.26	0.32	8.39	0.00	0.05	0.00	99.61	Cr-pyrope
Peddie-gar-120	red	41.81	0.27	19.57	5.33	20.73	5.05	0.28	7.03	0.02	0.03	0.00	100.11	Cr-pyrope
Peddie-gar-121	red	41.78	0.79	22.23	0.15	18.59	4.82	0.40	11.68	0.00	0.09	0.00	100.54	Pyrope
Peddie-gar-122	red	41.60	0.83	20.52	3.11	20.22	5.19	0.38	8.37	0.03	0.05	0.01	100.31	Cr-pyrope
Peddie-gar-123	red	41.57	0.71	19.41	4.91	20.22	5.74	0.30	6.97	0.01	0.05	0.00	99.89	Cr-pyrope
Peddie-gar-124	red	41.60	0.99	20.74	2.00	20.06	4.76	0.34	9.37	0.00	0.10	0.01	99.96	Pyrope
Peddie-gar-125	red	41.75	0.32	20.19	4.24	21.00	5.35	0.33	6.86	0.03	0.02	0.01	100.10	Cr-pyrope
Peddie-gar-126	orange	42.04	0.56	21.14	2.70	21.26	4.37	0.29	7.47	0.00	0.05	0.00	99.89	Cr-pyrope
Peddie-gar-127	orange	41.32	1.04	20.71	2.18	20.01	4.66	0.33	8.99	0.00	0.11	0.00	99.35	Cr-pyrope
Peddie-gar-128	orange	41.41	0.79	20.34	2.85	20.04	5.12	0.34	8.35	0.02	0.06	0.00	99.31	Cr-pyrope
Peddie-gar-129	orange	41.30	0.89	21.92	0.14	18.61	4.82	0.43	11.47	0.00	0.09	0.00	99.68	Pyrope
Peddie-gar-130	orange	41.37	1.02	20.62	1.97	19.85	4.75	0.36	9.16	0.00	0.10	0.00	99.21	Pyrope
Peddie-gar-131	orange	41.61	0.99	20.73	1.91	19.90	4.67	0.31	9.11	0.00	0.11	0.00	99.35	Pyrope
Peddie-gar-132	orange	41.76	0.78	20.35	2.72	20.24	5.23	0.29	8.53	0.00	0.05	0.00	99.94	Cr-pyrope
Peddie-gar-133	orange	41.58	0.79	21.94	0.14	18.87	4.76	0.40	11.60	0.01	0.08	0.00	100.17	Pyrope
Peddie-gar-134	orange	41.46	0.77	21.60	0.55	19.22	4.87	0.41	10.62	0.01	0.07	0.00	99.59	Pyrope
Peddie-gar-135	orange	41.70	0.76	20.40	2.52	19.93	5.07	0.31	8.32	0.06	0.05	0.00	99.11	Cr-pyrope
Peddie-gar-136	orange	41.29	0.73	20.22	3.25	20.41	4.49	0.34	8.71	0.02	0.09	0.00	99.54	Cr-pyrope
Peddie-gar-137	orange	41.50	0.96	20.75	1.94	19.83	4.75	0.35	9.16	0.04	0.09	0.00	99.37	Pyrope
Peddie-gar-138	orange	41.58	0.78	20.53	2.88	20.31	5.19	0.33	8.31	0.03	0.07	0.00	100.01	Cr-pyrope
Peddie-gar-139	orange	41.44	0.77	21.81	0.48	19.43	4.81	0.38	10.20	0.00	0.08	0.01	99.42	Pyrope
Peddie-gar-140	orange	41.23	0.55	22.39	0.14	18.60	4.49	0.42	11.37	0.01	0.06	0.00	99.28	Pyrope
Peddie-gar-141	orange	41.69	0.69	21.91	0.48	19.29	4.99	0.38	10.20	0.00	0.06	0.00	99.69	Pyrope
Peddie-gar-142	orange	41.44	0.83	21.82	0.16	18.45	4.76	0.46	11.48	0.00	0.09	0.00	99.47	Pyrope
Peddie-gar-143	orange	41.44	0.42	22.52	0.14	18.70	4.15	0.46	11.49	0.01	0.05	0.00	99.40	Pyrope
Peddie-gar-144	orange	41.66	0.77	20.55	2.53	20.14	5.07	0.28	8.36	0.00	0.05	0.00	99.39	Cr-pyrope
Peddie-gar-145	orange	41.67	0.65	21.82	1.33	20.94	4.44	0.27	8.09	0.02	0.07	0.00	99.29	Pyrope
Peddie-gar-146	orange	41.49	1.03	20.69	1.99	19.84	4.78	0.36	9.27	0.01	0.09	0.00	99.54	Pyrope
Peddie-gar-147	orange	41.61	0.78	20.70	2.63	20.14	5.16	0.30	8.33	0.02	0.05	0.00	99.73	Cr-pyrope
Peddie-gar-148	orange	41.75	0.80	20.85	2.50	20.35	5.07	0.27	8.38	0.09	0.05	0.00	100.11	Cr-pyrope
Peddie-gar-149	orange	41.45	0.79	22.06	0.12	18.70	4.64	0.42	11.55	0.05	0.10	0.00	99.87	Pyrope
Peddie-gar-150	orange	41.46	0.69	21.79	0.49	19.35	4.85	0.37	10.25	0.00	0.09	0.00	99.35	Pyrope
Peddie-gar-151	orange	41.72	1.03	20.74	1.91	20.05	4.73	0.31	9.20	0.00	0.09	0.00	99.79	Pyrope
Peddie-gar-152	orange	41.36	0.78	20.40	2.77	19.98	5.21	0.26	8.34	0.02	0.06	0.00	99.17	Cr-pyrope
Peddie-gar-153	orange	41.39	0.82	20.61	2.65	19.92	5.12	0.32	8.44	0.01	0.06	0.00	99.33	Cr-pyrope
Peddie-gar-154	orange	41.58	0.78	20.37	2.74	20.01	5.18	0.34	8.35	0.01	0.04	0.00	99.40	Cr-pyrope
Peddie-gar-155	orange	41.65	0.78	20.31	2.85	19.98	5.17	0.30	8.36	0.03	0.05	0.00	99.49	Cr-pyrope
Peddie-gar-156	orange	41.24	0.75	22.05	0.09	18.62	4.62	0.46	11.44	0.00	0.07	0.00	99.34	Pyrope
Peddie-gar-157	orange	41.39	0.99	20.94	2.00	20.05	4.61	0.30	9.15	0.05	0.09	0.00	99.57	Pyrope
Peddie-gar-158	orange	41.41	1.00	20.80	1.95	20.01	4.76	0.30	9.19	0.00	0.10	0.00	99.53	Pyrope
Peddie-gar-159	orange	41.34	0.68	22.00	0.11	18.60	4.63	0.48	11.70	0.05	0.07	0.00	99.66	Pyrope
Peddie-gar-160	orange	41.66	0.76	20.38	2.69	19.95	5.20	0.33	8.30	0.02	0.05	0.00	99.34	Cr-pyrope
Peddie-gar-161	orange	41.83	0.65	21.93	1.41	20.90	4.44	0.35	8.17	0.02	0.06	0.00	99.76	Pyrope
Peddie-gar-162	orange	41.51	0.46	22.67	0.16	18.81	4.21	0.43	11.68	0.00	0.06	0.00	99.98	Pyrope
Peddie-gar-163	orange	41.45	0.96	20.70	2.04	19.98	4.73	0.31	9.05	0.00	0.10	0.00	99.33	Cr-pyrope
Peddie-gar-164	orange	41.38	0.81	22.03	0.13	18.79	4.70	0.40	11.41	0.01	0.09	0.00	99.74	Pyrope
Peddie-gar-165	orange	41.85	0.53	20.91	2.83	21.17	4.46	0.26	7.41	0.00	0.06	0.00	99.48	Cr-pyrope
Peddie-gar-166	orange	41.37	0.78	22.16	0.08	18.64	4.63	0.47	11.59	0.04	0.08	0.00	99.83	Pyrope
Peddie-gar-167	orange	41.96	0.61	21.95	1.31	21.09	4.38	0.31	7.92	0.04	0.07	0.00	99.62	Pyrope
Peddie-gar-168	orange	41.61	0.76	20.42	2.47	20.16	5.26	0.27	8.39	0.00	0.06	0.00	99.39	Cr-pyrope
Peddie-gar-169	orange	41.48	0.74	20.46	2.53	19.95	5.08	0.34	8.58	0.01	0.05	0.00	99.21	Cr-pyrope

Peddie. Garnet. continued

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Peddie-gar-170	orange	41.09	0.99	20.76	1.82	19.87	4.72	0.29	9.22	0.00	0.09	0.00	98.85	Pyrope
Peddie-gar-171	orange	41.40	0.55	22.21	0.09	18.75	4.64	0.50	11.40	0.00	0.09	0.00	99.63	Pyrope
Peddie-gar-172	orange	41.71	0.75	20.43	2.77	20.07	5.13	0.30	8.25	0.04	0.05	0.00	99.50	Cr-pyrope
Peddie-gar-173	orange	41.52	0.79	20.40	2.63	20.14	5.19	0.26	8.26	0.04	0.05	0.00	99.27	Cr-pyrope
Peddie-gar-174	orange	41.59	0.79	20.26	2.70	20.06	5.31	0.35	8.43	0.01	0.05	0.00	99.55	Cr-pyrope
Peddie-gar-175	orange	41.24	1.01	20.67	1.97	19.98	4.74	0.32	9.09	0.03	0.08	0.00	99.15	Pyrope
Peddie-gar-176	orange	41.31	0.85	20.39	2.90	20.27	5.25	0.32	8.37	0.03	0.04	0.00	99.74	Cr-pyrope
Peddie-gar-177	orange	41.35	0.81	22.09	0.15	18.60	4.73	0.47	11.62	0.00	0.10	0.00	99.93	Pyrope
Peddie-gar-178	orange	41.30	0.78	21.93	0.11	18.57	4.75	0.47	11.66	0.00	0.10	0.00	99.67	Pyrope
Peddie-gar-179	orange	41.49	0.83	20.32	2.84	20.02	5.21	0.29	8.38	0.02	0.05	0.00	99.45	Cr-pyrope
Peddie-gar-180	orange	41.32	0.71	22.16	0.12	18.86	4.67	0.52	11.65	0.05	0.08	0.00	100.13	Pyrope
Peddie-gar-181	orange	42.20	0.61	21.88	1.39	20.90	4.44	0.32	8.04	0.00	0.06	0.00	99.83	Pyrope
Peddie-gar-182	orange	41.25	0.46	22.40	0.08	18.94	4.27	0.45	11.65	0.00	0.06	0.00	99.56	Pyrope
Peddie-gar-183	orange	41.41	0.78	20.40	2.76	19.97	5.21	0.35	8.32	0.00	0.06	0.00	99.25	Cr-pyrope
Peddie-gar-184	orange	41.58	1.00	20.81	1.85	19.97	4.70	0.35	9.22	0.03	0.09	0.00	99.60	Pyrope
Peddie-gar-185	orange	42.00	0.69	21.83	1.43	20.98	4.33	0.30	8.08	0.00	0.08	0.00	99.72	Pyrope
Peddie-gar-186	orange	41.34	0.82	20.38	2.83	20.04	5.18	0.31	8.48	0.01	0.06	0.01	99.46	Cr-pyrope
Peddie-gar-187	orange	41.27	0.83	21.99	0.09	18.68	4.65	0.42	11.40	0.01	0.09	0.00	99.44	Pyrope
Peddie-gar-188	orange	41.93	0.65	21.82	1.48	20.93	4.54	0.28	7.88	0.01	0.08	0.01	99.61	Pyrope
Peddie-gar-189	orange	41.55	0.50	22.51	0.11	18.87	4.61	0.47	11.55	0.00	0.05	0.00	100.24	Pyrope
Peddie-gar-190	orange	41.32	0.77	20.39	2.78	19.99	5.20	0.30	8.33	0.00	0.05	0.01	99.12	Cr-pyrope
Peddie-gar-191	orange	41.52	0.78	21.91	0.13	18.55	4.77	0.43	11.64	0.02	0.09	0.00	99.83	Pyrope
Peddie-gar-192	orange	41.18	0.75	22.05	0.12	18.51	4.74	0.45	11.74	0.03	0.08	0.00	99.66	Pyrope
Peddie-gar-193	orange	41.92	0.63	22.01	1.24	20.92	4.41	0.31	8.14	0.00	0.07	0.00	99.65	Pyrope
Peddie-gar-194	orange	41.47	0.81	20.58	2.64	20.16	5.24	0.33	8.43	0.00	0.07	0.01	99.74	Cr-pyrope
Peddie-gar-195	orange	41.33	0.42	22.62	0.08	18.84	4.25	0.39	11.44	0.03	0.04	0.00	99.44	Pyrope
Peddie-gar-196	orange	42.03	0.60	21.94	1.33	21.07	4.48	0.33	8.06	0.00	0.06	0.00	99.93	Pyrope
Peddie-gar-197	orange	41.40	0.73	21.85	0.14	18.71	4.81	0.43	11.79	0.00	0.09	0.00	99.94	Pyrope
Peddie-gar-198	orange	41.65	0.81	20.17	2.70	20.00	5.16	0.32	8.42	0.00	0.06	0.00	99.30	Cr-pyrope
Peddie-gar-199	orange	41.34	1.02	20.86	1.94	19.98	4.77	0.31	9.29	0.01	0.09	0.00	99.61	Pyrope
Peddie-gar-200	orange	41.48	1.04	20.81	1.86	20.14	4.74	0.32	8.98	0.01	0.10	0.00	99.49	Pyrope
Peddie-gar-201	orange	41.30	1.04	20.70	1.92	19.92	4.75	0.30	9.05	0.03	0.11	0.00	99.13	Pyrope
Peddie-gar-202	orange	41.43	0.82	21.86	0.10	18.67	4.80	0.45	11.41	0.01	0.10	0.00	99.64	Pyrope
Peddie-gar-203	orange	41.38	0.77	21.98	0.07	18.54	4.77	0.37	11.48	0.02	0.09	0.00	99.46	Pyrope
Peddie-gar-204	orange	41.32	0.76	21.88	0.08	18.66	4.72	0.42	11.51	0.00	0.10	0.00	99.45	Pyrope
Peddie-gar-205	orange	41.32	0.87	21.98	0.10	18.51	4.86	0.45	11.55	0.00	0.10	0.00	99.75	Pyrope
Peddie-gar-206	orange	41.33	0.76	21.98	0.15	18.57	4.61	0.42	11.49	0.01	0.09	0.00	99.40	Pyrope
Peddie-gar-207	orange	41.55	0.76	20.10	2.93	20.21	5.20	0.30	8.38	0.01	0.05	0.00	99.51	Cr-pyrope
Peddie-gar-208	orange	41.60	0.70	20.39	2.85	20.41	4.29	0.28	8.76	0.00	0.08	0.00	99.34	Cr-pyrope
Peddie-gar-209	orange	41.23	0.70	22.04	0.12	18.71	4.64	0.45	11.69	0.01	0.08	0.00	99.68	Pyrope
Peddie-gar-210	orange	41.44	0.78	20.46	2.49	20.04	5.13	0.33	8.49	0.01	0.03	0.00	99.20	Cr-pyrope
Peddie-gar-211	orange	41.24	0.85	21.97	0.12	18.54	4.73	0.41	11.64	0.01	0.10	0.00	99.63	Pyrope
Peddie-gar-212	orange	41.45	1.03	20.79	1.93	20.03	4.80	0.35	9.14	0.00	0.10	0.00	99.61	Pyrope
Peddie-gar-213	orange	41.35	0.73	22.05	0.13	18.81	4.85	0.45	11.55	0.01	0.08	0.00	100.00	Pyrope
Peddie-gar-214	orange	41.33	1.02	20.67	1.84	19.64	4.80	0.35	9.10	0.01	0.11	0.00	98.87	Pyrope
Peddie-gar-215	orange	41.29	0.74	22.01	0.12	18.72	4.73	0.43	11.79	0.00	0.08	0.00	99.91	Pyrope
Peddie-gar-216	orange	41.42	0.77	22.08	0.12	18.66	4.68	0.47	11.61	0.02	0.08	0.00	99.90	Pyrope
Peddie-gar-217	orange	41.52	0.79	20.41	2.79	20.12	5.24	0.26	8.59	0.00	0.06	0.00	99.78	Cr-pyrope
Peddie-gar-218	orange	41.65	0.82	20.10	2.79	20.13	5.10	0.27	8.41	0.00	0.05	0.01	99.32	Cr-pyrope
Peddie-gar-219	orange	41.46	0.96	20.91	1.85	19.76	5.49	0.33	8.71	0.01	0.08	0.00	99.55	Pyrope
Peddie-gar-220	orange	41.63	0.82	20.41	2.84	20.22	5.20	0.32	8.37	0.02	0.05	0.00	99.88	Cr-pyrope
Peddie-gar-221	orange	41.39	0.78	20.51	2.41	20.03	5.23	0.27	8.19	0.00	0.05	0.00	98.87	Cr-pyrope
Peddie-gar-222	orange	41.72	0.52	22.40	0.12	18.76	4.57	0.48	11.51	0.00	0.07	0.00	100.15	Pyrope
Peddie-gar-223	orange	41.50	1.00	20.56	1.92	19.94	4.74	0.35	9.10	0.01	0.08	0.01	99.20	Pyrope
Peddie-gar-224	orange	41.62	0.50	22.34	0.17	18.84	4.51	0.46	11.52	0.01	0.07	0.00	100.03	Pyrope
Peddie-gar-225	orange	41.83	0.57	22.80	0.10	19.68	3.99	0.36	10.78	0.00	0.07	0.00	100.16	Pyrope

Peddie. Garnet. continued

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Peddie-gar-226	orange	41.30	0.78	21.77	0.14	18.72	4.79	0.45	11.53	0.03	0.10	0.00	99.59	Pyrope
Peddie-gar-227	orange	41.75	1.02	20.92	1.94	20.23	4.76	0.33	9.19	0.02	0.09	0.00	100.24	Pyrope
Peddie-gar-228	orange	41.60	0.55	22.39	0.12	18.69	4.65	0.46	11.34	0.00	0.07	0.00	99.86	Pyrope
Peddie-gar-229	orange	41.27	1.01	20.51	2.02	19.79	4.76	0.33	9.30	0.02	0.10	0.00	99.11	Cr-pyrope
Peddie-gar-230	orange	42.10	0.65	21.73	1.45	21.01	4.47	0.30	8.10	0.00	0.07	0.00	99.88	Pyrope
Peddie-gar-231	orange	41.79	0.69	21.35	1.77	20.70	4.55	0.36	8.08	0.01	0.07	0.00	99.36	Pyrope
Peddie-gar-232	orange	41.54	0.80	21.96	0.13	18.72	4.75	0.44	11.65	0.01	0.08	0.00	100.08	Pyrope
Peddie-gar-233	orange	41.60	0.85	22.05	0.07	18.81	4.78	0.43	11.67	0.00	0.10	0.00	100.37	Pyrope
Peddie-gar-234	orange	41.38	0.80	22.07	0.18	18.76	4.78	0.47	11.60	0.00	0.10	0.00	100.15	Pyrope
Peddie-gar-235	orange	41.35	0.98	20.69	1.87	19.93	4.61	0.35	8.93	0.00	0.10	0.00	98.81	Pyrope

Peddie. Garnet-GSC

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
purple/red-1	41.45	0.29	18.68	6.51	20.26	5.42	0.33	6.94	0.00	0.06	0.00	99.92
purple/red-2	41.81	0.45	19.12	5.39	20.56	5.18	0.32	7.19	0.02	0.04	0.00	100.09
purple/red-3	41.52	0.20	19.65	5.23	20.81	4.99	0.31	6.60	0.02	0.03	0.00	99.34
purple/red-4	42.16	0.39	20.54	3.85	21.05	4.91	0.34	6.67	0.03	0.05	0.00	99.97
purple/red-5	41.53	0.20	19.24	5.41	20.44	4.89	0.35	6.55	0.02	0.04	0.00	98.66
purple/red-6	41.38	0.20	19.47	5.32	20.82	5.01	0.36	6.75	0.01	0.02	0.00	99.35
purple/red-7	41.78	0.19	19.68	4.54	20.67	5.15	0.31	7.17	0.04	0.00	0.01	99.55
purple/red-8	41.46	0.26	18.37	6.80	20.08	5.48	0.39	7.06	0.00	0.04	0.00	99.94
purple/red-9	41.97	0.17	19.47	5.21	20.88	4.95	0.31	6.70	0.00	0.05	0.00	99.70
purple/red-10	41.45	0.48	18.86	5.59	20.15	5.55	0.33	6.80	0.00	0.04	0.01	99.27
purple/red-11	41.29	0.24	19.35	5.38	21.06	5.06	0.29	6.64	0.00	0.04	0.00	99.36
purple/red-12	41.81	0.18	19.55	5.26	20.67	5.03	0.28	6.68	0.01	0.03	0.00	99.49
purple/red-13	41.48	0.21	19.18	5.70	20.66	5.19	0.33	6.71	0.01	0.04	0.00	99.51
purple/red-14	41.88	0.21	19.18	5.37	20.64	5.12	0.28	6.64	0.03	0.02	0.00	99.37
purple/red-15	41.65	0.18	19.31	5.35	20.76	4.92	0.31	6.71	0.01	0.04	0.01	99.24
purple/red-16	41.78	0.22	19.40	5.17	20.82	4.92	0.33	6.69	0.01	0.04	0.00	99.38
purple/red-17	41.52	0.20	19.41	5.54	20.64	4.90	0.29	6.62	0.03	0.02	0.00	99.15
purple/red-18	41.68	0.22	19.30	5.30	20.96	5.01	0.32	6.68	0.03	0.03	0.01	99.53
purple/red-19	41.80	0.25	19.38	5.36	20.83	5.13	0.30	6.72	0.01	0.04	0.00	99.82
purple/red-20	41.80	0.25	19.14	5.60	20.68	5.11	0.31	6.67	0.00	0.05	0.01	99.60
purple/red-21	41.89	0.20	19.33	5.35	20.71	4.92	0.35	6.80	0.02	0.04	0.00	99.60
purple/red-22	41.48	0.45	19.29	5.13	20.56	5.14	0.34	7.01	0.00	0.05	0.00	99.45
purple/red-23	41.59	0.25	19.05	5.76	20.72	5.23	0.32	6.64	0.03	0.03	0.00	99.60
purple/red-24	41.62	0.21	19.39	5.42	20.79	5.00	0.36	6.75	0.01	0.01	0.00	99.56
purple/red-25	41.60	0.21	19.04	5.69	20.47	5.12	0.31	6.66	0.03	0.03	0.01	99.17
purple/red-26	41.73	0.24	19.20	5.90	20.53	5.19	0.35	6.56	0.04	0.05	0.00	99.78
purple/red-27	41.52	0.17	19.38	5.44	20.82	5.03	0.31	6.64	0.03	0.03	0.01	99.36
purple/red-28	41.57	0.37	18.12	6.76	20.27	5.56	0.26	6.38	0.00	0.02	0.00	99.31
purple/red-29	41.46	0.32	18.63	6.07	20.35	5.35	0.35	6.81	0.00	0.04	0.00	99.36
purple/red-30	42.06	0.21	19.71	5.33	21.00	4.99	0.37	6.69	0.02	0.04	0.00	100.41
purple/red-31	41.58	0.38	18.96	5.55	20.30	5.54	0.33	6.87	0.00	0.03	0.01	99.56
purple/red-32	41.82	0.22	19.43	5.32	20.96	4.95	0.31	6.72	0.01	0.04	0.01	99.79
purple/red-33	42.00	0.20	19.43	5.24	20.79	4.95	0.36	6.53	0.00	0.01	0.01	99.50
purple/red-34	42.00	0.23	19.38	5.41	20.78	4.98	0.33	6.64	0.00	0.04	0.00	99.79
purple/red-35	41.96	0.20	19.86	5.33	21.01	4.90	0.38	6.76	0.01	0.01	0.00	100.43
purple/red-36	41.72	0.19	19.56	5.29	20.84	4.93	0.35	6.49	0.00	0.03	0.00	99.40
purple/red-37	41.35	0.27	19.33	5.94	20.73	5.21	0.32	6.45	0.00	0.04	0.00	99.62
purple/red-38	42.06	0.37	20.70	3.74	21.16	4.94	0.31	6.62	0.02	0.03	0.00	99.94
purple/red-39	41.90	0.22	19.51	5.36	21.02	5.05	0.37	6.61	0.00	0.02	0.00	100.05
purple/red-40	41.63	0.20	19.35	5.47	20.83	4.97	0.34	6.58	0.00	0.04	0.00	99.41
purple/red-41	41.55	0.10	21.12	3.51	19.38	4.92	0.43	8.48	0.02	0.03	0.00	99.53
purple/red-42	41.65	0.17	19.54	5.08	20.94	4.96	0.31	6.57	0.01	0.03	0.00	99.24
purple/red-43	41.90	0.36	17.92	7.04	20.30	5.80	0.32	6.31	0.00	0.02	0.01	99.97
purple/red-44	41.65	0.19	19.29	5.42	20.78	4.98	0.36	6.56	0.01	0.04	0.00	99.37
purple/red-45	41.61	0.21	19.46	5.61	20.85	5.03	0.29	6.72	0.01	0.02	0.00	99.82
purple/red-46	41.62	0.24	19.46	5.78	20.64	5.08	0.33	6.51	0.01	0.05	0.00	99.71
purple/red-47	41.52	0.22	19.33	5.25	20.67	4.87	0.32	6.55	0.00	0.03	0.00	98.77
purple/red-48	42.06	0.23	19.41	5.32	20.83	5.00	0.32	6.69	0.00	0.01	0.00	99.87
purple/red-49	41.80	0.20	19.78	5.36	20.84	5.06	0.31	6.65	0.00	0.03	0.00	100.03
purple/red-50	41.63	0.42	19.24	5.47	20.37	5.61	0.26	6.65	0.02	0.02	0.01	99.71
purple/red-51	41.86	0.19	19.47	5.22	20.82	4.98	0.31	6.78	0.06	0.02	0.00	99.70
purple/red-52	41.39	0.23	18.81	5.81	20.49	5.15	0.27	6.77	0.00	0.03	0.00	98.94
purple/red-53	41.49	0.48	18.97	5.63	20.51	5.22	0.28	6.92	0.01	0.04	0.00	99.56
purple/red-54	41.52	0.24	19.32	5.29	21.05	5.00	0.31	6.64	0.01	0.03	0.00	99.41
purple/red-55	41.34	0.73	20.19	3.00	20.24	4.62	0.36	8.54	0.00	0.08	0.00	99.10
purple/red-56	41.51	0.46	18.82	5.81	20.26	5.66	0.28	6.72	0.00	0.02	0.00	99.55

Peddie. Garnet-GSC. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
purple/red-57	41.81	0.22	19.41	5.18	20.71	5.03	0.37	6.73	0.00	0.03	0.00	99.50
purple/red-58	41.70	0.35	17.71	7.05	20.18	5.82	0.27	6.25	0.00	0.03	0.00	99.37
purple/red-59	41.52	0.22	19.60	5.47	20.83	5.00	0.33	6.65	0.02	0.03	0.00	99.67
purple/red-60	41.92	0.19	19.54	5.17	20.87	4.79	0.29	6.67	0.00	0.03	0.00	99.47
red-1	41.57	0.18	19.62	5.28	20.92	4.97	0.34	6.6	0.00	0.03	0.00	99.51
red-2	41.76	0.22	19.28	5.54	20.57	5.12	0.32	6.49	0.00	0.03	0.00	99.33
red-3	41.76	0.75	19.97	2.89	20.33	4.62	0.29	8.79	0.04	0.07	0.00	99.51
red-4	42.09	0.53	20.51	3.60	20.95	4.91	0.25	6.99	0.01	0.06	0.00	99.89
red-5	41.75	0.20	19.27	5.63	20.62	5.04	0.34	6.58	0.00	0.03	0.00	99.47
red-6	42.11	0.37	20.75	3.64	21.31	4.84	0.29	6.60	0.04	0.05	0.00	100.01
red-7	41.80	0.46	19.10	5.32	20.68	5.65	0.32	6.91	0.03	0.02	0.00	100.27
red-8	41.48	0.77	20.06	3.05	20.14	4.56	0.27	8.92	0.00	0.08	0.00	99.33
red-9	41.88	0.39	20.37	3.82	21.04	4.99	0.33	6.38	0.00	0.03	0.00	99.23
red-10	41.94	0.41	20.67	3.95	21.19	4.91	0.30	6.54	0.02	0.02	0.00	99.95
red-11	41.69	0.21	19.40	5.11	20.68	5.02	0.32	6.56	0.02	0.03	0.00	99.04
red-12	41.24	0.74	19.77	3.07	19.96	4.55	0.27	8.69	0.03	0.08	0.00	98.40
red-13	41.57	0.20	19.20	5.52	20.71	5.03	0.32	6.65	0.00	0.03	0.00	99.22
red-14	41.92	0.35	20.41	4.12	20.84	4.90	0.32	6.77	0.00	0.03	0.00	99.67
red-15	41.79	0.22	19.36	5.40	20.87	4.93	0.32	6.59	0.01	0.03	0.00	99.52
red-16	41.71	0.23	19.58	5.30	20.92	5.02	0.30	6.84	0.00	0.03	0.00	99.93
red-17	41.83	0.43	21.08	2.99	21.46	4.72	0.36	6.79	0.00	0.06	0.00	99.72
red-18	41.96	0.31	20.27	3.69	20.80	5.06	0.28	6.85	0.02	0.04	0.01	99.29
red-19	41.85	0.78	20.12	3.07	20.26	4.66	0.30	8.74	0.00	0.09	0.00	99.86
red-20	41.78	0.34	20.60	3.93	21.17	4.93	0.32	6.53	0.05	0.05	0.00	99.69
red-21	41.88	0.38	20.35	3.69	21.15	4.80	0.31	6.45	0.00	0.04	0.00	99.04
red-22	41.78	0.38	20.32	3.65	21.08	4.83	0.34	6.49	0.00	0.04	0.00	98.90
red-23	42.08	0.43	20.38	3.74	21.20	4.96	0.27	6.56	0.00	0.05	0.00	99.66
red-24	41.37	0.79	20.06	3.12	20.06	4.59	0.29	8.73	0.00	0.10	0.00	99.12
red-25	41.67	0.39	19.08	5.27	20.31	5.43	0.28	6.74	0.02	0.01	0.00	99.20
red-26	41.72	0.22	19.73	5.34	20.89	4.95	0.32	6.66	0.02	0.04	0.00	99.88
red-27	41.95	0.34	20.85	3.55	21.38	4.89	0.28	6.54	0.00	0.04	0.00	99.81
red-28	41.70	0.47	20.41	3.52	21.26	4.89	0.21	6.82	0.00	0.04	0.00	99.32
red-29	41.79	0.37	20.34	3.74	21.28	4.92	0.35	6.61	0.00	0.04	0.00	99.44
red-30	41.96	0.42	19.79	5.06	20.78	5.14	0.39	7.01	0.00	0.03	0.00	100.59
red-31	41.67	0.73	20.10	2.92	20.30	4.67	0.39	8.72	0.01	0.08	0.00	99.58
red-32	41.83	0.36	20.52	3.95	20.99	4.87	0.31	6.27	0.02	0.03	0.00	99.16
red-33	41.66	0.25	19.37	5.59	20.75	5.20	0.35	6.73	0.02	0.03	0.00	99.95
red-34	41.66	0.20	19.17	5.50	20.88	5.02	0.32	6.45	0.01	0.02	0.00	99.24
red-35	41.76	0.34	20.27	4.11	21.24	5.04	0.34	6.47	0.00	0.03	0.00	99.59
red-36	41.92	0.72	20.29	3.04	20.25	4.49	0.26	8.65	0.01	0.08	0.00	99.73
red-37	41.89	0.37	20.35	4.02	21.19	4.99	0.33	6.67	0.01	0.06	0.00	99.89
red-38	41.67	0.18	19.60	5.14	20.73	4.85	0.34	6.77	0.00	0.01	0.00	99.31
red-39	41.53	0.06	20.38	3.98	19.04	5.41	0.40	8.37	0.01	0.02	0.00	99.21
red-40	42.07	0.35	20.56	3.65	21.26	4.87	0.32	6.69	0.02	0.04	0.00	99.83
red-41	41.01	0.45	19.65	4.06	18.71	4.84	0.43	10.20	0.03	0.06	0.00	99.43
red-42	41.72	0.51	19.84	4.62	21.09	5.30	0.26	6.20	0.00	0.04	0.00	99.58
red-43	41.31	0.79	21.20	1.06	19.32	4.81	0.34	10.26	0.01	0.09	0.00	99.19
red-44	41.69	0.19	19.39	5.45	20.66	4.96	0.28	6.56	0.01	0.03	0.00	99.24
red-45	41.45	0.19	20.25	4.13	20.06	4.95	0.34	7.65	0.01	0.05	0.00	99.08
red-46	41.92	0.43	19.65	4.64	20.64	5.36	0.28	6.89	0.01	0.02	0.00	99.85
red-47	42.05	0.38	20.28	4.12	20.92	5.10	0.30	6.36	0.00	0.05	0.00	99.55
red-48	41.68	0.20	19.33	5.32	20.88	4.99	0.30	6.69	0.00	0.05	0.00	99.45
red-49	42.13	0.29	20.81	3.64	20.87	4.95	0.26	6.87	0.01	0.04	0.01	99.87
red-50	41.85	0.40	20.04	4.51	20.70	5.00	0.35	6.61	0.01	0.06	0.01	99.52
red-51	42.05	0.42	21.11	2.40	20.87	4.43	0.30	7.74	0.00	0.04	0.00	99.36

Peddie. Garnet-GSC. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
red-52	41.83	0.76	20.22	3.00	20.47	4.60	0.33	8.91	0.01	0.10	0.00	100.21
red-53	41.71	0.71	20.21	2.95	20.29	4.57	0.32	8.70	0.00	0.10	0.00	99.56
red-54	41.79	0.32	20.34	3.94	21.32	4.86	0.33	6.35	0.01	0.04	0.00	99.30
red-55	41.48	0.22	19.43	5.34	20.75	4.98	0.29	6.70	0.00	0.03	0.00	99.22
red-56	41.47	0.15	21.17	3.08	20.17	4.69	0.40	8.04	0.02	0.05	0.00	99.24
red-57	41.76	0.15	21.28	3.19	20.06	4.66	0.43	8.08	0.01	0.06	0.01	99.69
red-58	41.97	0.33	20.63	3.52	21.13	4.82	0.30	6.51	0.03	0.04	0.01	99.28
red-59	41.88	0.17	21.31	3.05	20.46	4.55	0.38	8.08	0.00	0.04	0.00	99.93
red-60	42.16	0.37	20.62	3.91	21.48	4.93	0.33	6.43	0.00	0.05	0.01	100.29
red-61	41.59	0.77	20.33	3.11	20.31	4.65	0.28	8.64	0.00	0.07	0.00	99.75
red-62	41.63	0.25	19.59	5.13	21.04	4.99	0.35	6.56	0.04	0.03	0.00	99.61
red-63	41.96	0.17	19.81	5.32	20.66	4.92	0.39	6.59	0.03	0.04	0.00	99.91
red-64	41.58	0.03	21.58	3.83	19.11	5.20	0.40	8.39	0.04	0.00	0.00	100.16
red-65	41.92	0.26	19.41	5.53	20.72	5.14	0.31	6.51	0.01	0.03	0.00	99.84
red-66	42.22	0.33	20.40	3.88	21.11	4.88	0.31	6.53	0.01	0.03	0.00	99.70
red-67	41.59	0.23	19.41	5.53	20.82	5.12	0.35	6.70	0.02	0.02	0.00	99.80
red-68	42.44	0.48	21.34	2.45	21.12	4.50	0.28	7.53	0.02	0.04	0.00	100.19
red-69	41.88	0.76	20.00	3.17	20.32	4.63	0.34	8.60	0.00	0.09	0.00	99.80
red-70	42.11	0.23	19.29	5.52	20.75	5.07	0.31	6.55	0.00	0.03	0.00	99.86
red-71	42.29	0.34	20.96	3.64	21.40	4.96	0.35	6.55	0.00	0.04	0.00	100.54
red-72	41.66	0.81	19.90	3.18	20.21	4.64	0.32	8.64	0.02	0.09	0.01	99.47
red-73	41.58	0.48	19.12	5.36	20.56	5.27	0.32	6.99	0.05	0.03	0.00	99.77
red-74	41.93	0.79	21.55	1.07	19.37	4.91	0.35	10.32	0.00	0.06	0.00	100.34
red-75	41.62	0.24	20.30	4.16	20.14	4.83	0.42	7.82	0.00	0.06	0.00	99.60
red-76	42.40	0.35	20.83	3.64	21.60	4.95	0.32	6.61	0.00	0.06	0.00	100.77
red-77	41.53	0.52	19.17	5.28	20.87	5.24	0.26	6.65	0.00	0.03	0.00	99.53
red-78	41.97	0.23	19.44	5.28	20.89	5.03	0.28	6.48	0.02	0.02	0.00	99.63
red-79	41.69	0.83	20.91	1.87	20.13	4.51	0.34	9.27	0.03	0.10	0.01	99.69
red-80	41.92	0.46	20.54	3.71	21.22	4.71	0.26	6.74	0.03	0.05	0.00	99.64
red-81	42.47	0.35	20.66	3.75	21.23	4.85	0.32	6.53	0.00	0.04	0.00	100.18
red-82	41.97	0.74	20.23	3.09	20.30	4.67	0.31	8.79	0.00	0.08	0.00	100.18
red-83	42.18	0.34	21.46	2.56	21.97	4.50	0.35	6.60	0.02	0.02	0.00	100.00
red-84	41.69	0.22	19.60	5.22	20.57	4.92	0.34	6.42	0.02	0.02	0.01	99.00
red-85	41.81	0.26	19.08	5.64	20.66	5.18	0.33	6.57	0.01	0.03	0.00	99.57
red-86	41.82	0.65	21.03	2.24	20.43	5.03	0.32	8.21	0.00	0.05	0.01	99.77
red-87	41.83	0.34	21.19	2.64	21.66	4.49	0.30	6.44	0.03	0.03	0.00	98.96
red/orange-1	41.77	0.92	21.70	0.51	19.60	5.06	0.37	9.73	0.01	0.10	0.00	99.76
red/orange-2	41.90	0.55	22.88	0.16	19.95	4.22	0.26	10.15	0.00	0.05	0.00	100.21
red/orange-3	41.97	0.87	22.10	0.48	19.62	4.91	0.33	9.87	0.00	0.10	0.00	100.24
red/orange-4	41.65	0.67	22.45	0.11	19.35	4.39	0.43	10.93	0.00	0.07	0.00	100.05
red/orange-5	41.66	0.83	21.97	0.20	19.05	4.91	0.42	10.26	0.00	0.08	0.00	99.37
red/orange-6	41.69	0.81	22.09	0.16	18.90	5.22	0.45	11.23	0.01	0.06	0.00	100.62
red/orange-7	41.67	0.77	21.92	0.25	19.19	4.44	0.38	10.94	0.00	0.08	0.00	99.62
red/orange-8	42.07	0.81	21.18	2.15	20.53	5.07	0.36	8.42	0.04	0.07	0.01	100.69
red/orange-9	42.03	0.52	22.04	1.23	21.47	4.05	0.31	7.97	0.05	0.05	0.00	99.71
red/orange-10	42.46	0.64	21.19	2.18	20.40	4.71	0.31	8.47	0.01	0.07	0.00	100.44
red/orange-11	42.20	0.62	22.52	0.10	19.02	4.26	0.40	11.28	0.02	0.06	0.00	100.48
red/orange-12	41.52	0.62	22.44	0.10	19.11	4.32	0.41	11.33	0.02	0.07	0.00	99.93
red/orange-13	41.92	0.87	21.95	0.45	19.44	4.96	0.36	9.68	0.03	0.10	0.00	99.76
red/orange-14	41.83	0.91	22.02	0.54	19.70	4.88	0.34	9.60	0.00	0.08	0.00	99.90
red/orange-15	41.45	0.44	22.76	0.21	19.38	4.06	0.50	10.79	0.02	0.07	0.00	99.66
red/orange-16	41.70	0.78	21.25	1.05	19.38	4.77	0.30	10.32	0.00	0.07	0.00	99.62
red/orange-17	41.70	0.94	21.69	0.49	19.53	5.04	0.36	9.51	0.01	0.09	0.00	99.36
red/orange-18	41.65	0.94	21.77	0.51	19.54	4.91	0.41	9.85	0.01	0.09	0.00	99.68
red/orange-19	41.48	0.35	22.42	0.42	18.50	4.12	0.47	11.67	0.00	0.05	0.00	99.47
red/orange-20	41.75	0.90	21.75	0.54	19.74	5.01	0.32	9.70	0.00	0.09	0.00	99.80

Peddie. Garnet-GSC. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
red/orange-21	41.49	1.03	21.62	0.10	18.44	5.32	0.42	10.69	0.03	0.11	0.00	99.26
red/orange-22	41.74	0.13	23.36	0.13	18.24	4.41	0.34	12.14	0.00	0.04	0.00	100.53
red/orange-23	40.77	0.02	0.00	0.00	50.32	0.00	0.09	8.12	0.34	0.00	0.00	99.65
red/orange-24	41.40	0.59	22.40	0.11	19.15	4.04	0.44	11.11	0.01	0.06	0.00	99.30
red/orange-25	41.98	0.42	22.46	0.28	19.72	4.41	0.43	10.21	0.02	0.05	0.00	99.99
red/orange-26	41.27	0.16	23.15	0.09	18.05	4.31	0.31	12.34	0.02	0.04	0.00	99.72
red/orange-27	41.51	0.83	21.71	0.13	18.48	5.28	0.42	11.17	0.00	0.10	0.00	99.62
red/orange-28	41.69	0.59	22.26	0.09	19.05	4.19	0.41	11.13	0.00	0.06	0.00	99.48
red/orange-29	41.76	0 73	22.20	0.13	19.16	4.55	0.39	11.12	0.01	0.11	0.01	100.16
red/orange-30	41.92	0.82	21.25	1.55	19.85	4.44	0.34	9.29	0.04	0.08	0.00	99.58
red/orange-31	41.50	1.18	21.36	0.11	18.46	5.31	0.42	10.99	0.03	0.14	0.00	99.49
red/orange-32	41.62	0.91	21.43	0.12	18.54	5.24	0.42	11.14	0.04	0.11	0.00	99.56
red/orange-33	41.49	0.54	22.25	0.06	19.05	4.24	0.45	11.27	0.01	0.09	0.00	99.44
red/orange-34	41.87	0.43	22.71	0.20	19.38	4.07	0.47	10.74	0.02	0.05	0.00	99.93
red/orange-35	41.97	0.78	22.01	0.25	19.11	4.74	0.37	10.12	0.00	0.10	0.00	99.45
red/orange-36	41.22	0.57	22.33	0.12	19.19	4.15	0.42	11.30	0.00	0.08	0.00	99.40
red/orange-37	41.52	0.84	21.96	0.28	19.64	4.79	0.38	10.21	0.00	0.10	0.00	99.71
red/orange-38	41.61	0.62	22.33	0.10	18.85	4.28	0.42	11.32	0.01	0.09	0.00	99.64
red/orange-39	41.58	0.77	22.05	0.17	19.05	4.50	0.44	11.38	0.00	0.12	0.00	100.06
red/orange-40	41.49	0.94	21.84	0.49	19.50	5.05	0.37	10.02	0.03	0.09	0.00	99.82
red/orange-41	41.60	0.55	22.60	0.07	18.97	4.23	0.44	11.01	0.01	0.07	0.00	99.54
red/orange-42	41.36	0.93	21.29	0.12	18.23	5.33	0.43	11.16	0.00	0.12	0.00	98.99
red/orange-43	41.73	0.60	22.45	0.13	18.98	4.29	0.45	11.31	0.02	0.08	0.00	100.03
red/orange-44	41.77	0.86	22.01	0.31	19.39	4.79	0.39	10.34	0.02	0.09	0.00	99.97
red/orange-45	41.44	0.98	21.52	0.11	18.54	5.24	0.42	11.09	0.02	0.12	0.00	99.47
red/orange-46	41.42	0.58	22.24	0.11	18.96	4.26	0.42	11.23	0.00	0.08	0.00	99.29
red/orange-47	41.67	0.91	21.83	0.48	19.62	4.86	0.33	9.68	0.02	0.10	0.00	99.49
red/orange-48	41.57	0.57	22.52	0.08	19.17	4.21	0.47	11.37	0.05	0.08	0.00	100.07
red/orange-49	41.72	0.54	22.44	0.21	19.64	4.22	0.41	10.52	0.02	0.03	0.00	99.74
red/orange-50	41.77	0.80	21.97	0.31	19.30	4.78	0.37	10.17	0.03	0.09	0.01	99.59
red/orange-51	41.25	0.61	21.91	0.08	18.14	4.46	0.46	11.76	0.00	0.05	0.01	98.74
red/orange-52	41.57	0.82	21.93	0.25	18.99	4.81	0.34	10.18	0.00	0.08	0.00	98.97
red/orange-53	41.61	0.65	22.01	0.12	18.72	4.92	0.41	11.09	0.05	0.08	0.00	99.65
red/orange-54	41.94	0.92	21.89	0.56	19.59	4.92	0.33	9.77	0.00	0.12	0.00	100.03
red/orange-55	41.77	0.79	22.21	0.26	19.13	4.70	0.43	10.29	0.02	0.11	0.00	99.72
red/orange-56	41.57	0.96	21.54	0.10	18.58	5.41	0.41	11.24	0.00	0.09	0.00	99.91
red/orange-57	41.51	0.74	22.04	0.26	19.32	4.39	0.37	10.65	0.02	0.08	0.00	99.38
red/orange-58	41.96	0.68	22.18	0.10	19.34	4.25	0.42	11.29	0.03	0.08	0.00	100.32
red/orange-59	41.57	0.94	21.64	0.54	19.49	4.94	0.36	9.63	0.00	0.09	0.00	99.21
red/orange-60	41.45	0.94	21.77	0.45	19.61	4.86	0.38	9.52	0.00	0.11	0.00	99.09
red/orange-61	40.97	0.02	0.00	0.00	50.49	0.01	0.15	7.96	0.45	0.00	0.01	100.05
red/orange-62	41.87	0.91	21.78	0.55	19.54	4.98	0.37	9.69	0.02	0.06	0.01	99.76
red/orange-63	41.41	0.15	23.24	0.13	18.20	4.34	0.34	12.18	0.00	0.03	0.00	100.02
red/orange-64	41.62	1.29	21.19	0.12	18.30	5.65	0.37	11.31	0.00	0.15	0.01	100.00
red/orange-65	41.79	0.31	22.17	1.46	19.90	4.54	0.40	9.29	0.03	0.07	0.00	99.97
red/orange-66	42.11	0.59	22.44	0.10	18.93	4.33	0.40	11.25	0.00	0.08	0.00	100.23
red/orange-67	41.57	0.91	21.86	0.06	18.56	5.18	0.46	11.22	0.01	0.12	0.00	99.94
red/orange-68	41.48	0.83	21.87	0.19	19.31	4.83	0.39	10.25	0.02	0.08	0.01	99.25
red/orange-69	41.59	0.95	21.86	0.51	19.56	4.90	0.34	9.64	0.00	0.07	0.00	99.41
red/orange-70	41.81	0.89	22.27	0.48	19.61	4.93	0.33	9.66	0.00	0.08	0.00	100.06
red/orange-71	41.87	0.91	21.75	0.49	19.45	4.99	0.41	9.73	0.01	0.08	0.00	99.69
red/orange-72	41.43	0.86	21.67	0.07	18.43	5.22	0.47	11.15	0.01	0.10	0.00	99.41
red/orange-73	41.40	1.22	21.44	0.14	18.17	5.42	0.37	11.22	0.03	0.14	0.00	99.53
red/orange-74	41.34	0.98	21.77	0.16	18.66	5.23	0.46	11.09	0.02	0.13	0.00	99.84
red/orange-75	41.66	0.66	22.25	0.12	19.05	4.29	0.44	11.27	0.01	0.08	0.00	99.82

Peddie. Garnet-GSC. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
red/orange-76	41.57	1.08	21.69	0.12	18.43	5.23	0.46	11.00	0.00	0.14	0.00	99.72
red/orange-77	41.58	1.21	21.23	0.12	18.25	5.69	0.42	11.43	0.04	0.15	0.00	100.12
red/orange-78	41.63	0.91	21.46	0.53	19.48	4.93	0.39	9.65	0.00	0.10	0.00	99.07
red/orange-79	41.41	1.14	21.30	0.08	18.34	5.41	0.41	11.41	0.00	0.13	0.00	99.61
red/orange-80	41.56	0.93	21.68	0.39	19.57	5.01	0.37	9.70	0.01	0.09	0.01	99.32
red/orange-81	41.80	0.77	21.91	0.28	19.34	4.43	0.38	10.60	0.01	0.09	0.00	99.61
red/orange-82	41.57	1.23	21.50	0.13	18.31	5.29	0.42	11.07	0.00	0.12	0.00	99.64
red/orange-83	41.27	0.91	21.66	0.55	19.42	4.87	0.33	9.73	0.00	0.10	0.00	98.84
red/orange-84	41.77	0.90	21.80	0.46	19.61	4.98	0.37	9.74	0.03	0.09	0.00	99.74
red/orange-85	41.39	0.93	21.90	0.45	19.40	4.92	0.36	9.77	0.00	0.09	0.02	99.21

Peddie. Chromite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
Peddie-oxi-31	0.02	0.23	0.01	14.39	53.64	0.20	10.98	0.00	0.31	19.31	0.11	0.15	99.35	2.15	17.38	99.57
Peddie-oxi-45	0.01	2.67	0.03	1.93	54.33	0.33	7.82	0.00	0.37	30.87	0.17	0.10	98.63	9.35	22.46	99.57
Peddie-oxi-76	0.01	0.35	0.00	13.44	50.39	0.27	10.68	0.01	0.53	23.41	0.15	0.17	99.42	6.36	17.68	100.06
Peddie-oxi-77	0.03	0.11	0.00	12.47	55.97	0.36	11.01	0.01	0.28	19.62	0.11	0.13	100.10	2.40	17.46	100.34
Peddie-oxi-78	0.02	0.26	0.01	12.47	55.16	0.28	11.17	0.01	0.11	19.87	0.11	0.13	99.59	2.92	17.24	99.89
Peddie-oxi-79	0.00	0.15	0.00	12.16	54.38	0.20	10.57	0.00	0.41	21.48	0.10	0.15	99.59	4.34	17.58	100.03
Peddie-oxi-80	0.01	0.12	0.00	8.48	59.71	0.24	10.01	0.01	0.44	20.72	0.09	0.14	99.97	3.07	17.96	100.28
Peddie-oxi-81	0.00	0.80	0.02	12.92	53.88	0.19	10.78	0.00	0.38	20.78	0.11	0.13	100.00	2.98	18.10	100.30
Peddie-oxi-82	0.01	2.55	0.00	1.12	55.88	0.54	8.39	0.01	0.41	30.17	0.17	0.12	99.36	9.28	21.82	100.29
Peddie-oxi-83	0.00	0.47	0.03	10.32	52.81	0.21	9.67	0.02	0.35	25.32	0.13	0.14	99.47	7.02	19.00	100.17
Peddie-oxi-84	0.00	0.29	0.00	12.25	54.86	0.15	10.50	0.00	0.23	20.99	0.09	0.15	99.52	3.45	17.88	99.87
Peddie-oxi-86	0.00	0.15	0.03	12.69	54.20	0.33	10.86	0.00	0.38	20.36	0.08	0.17	99.25	3.34	17.35	99.58
Peddie-oxi-87	0.00	0.50	0.00	10.12	53.43	0.27	10.35	0.01	0.37	24.40	0.11	0.15	99.71	6.98	18.12	100.41
Peddie-oxi-88	0.02	0.07	0.04	10.46	55.74	0.28	10.25	0.01	0.33	21.11	0.09	0.18	98.57	3.87	17.62	98.95
Peddie-oxi-89	0.00	0.95	0.02	8.85	50.94	0.27	9.19	0.00	0.46	27.67	0.15	0.14	98.65	8.88	19.68	99.54
Peddie-oxi-90	0.00	0.61	0.01	7.60	54.89	0.46	9.93	0.00	0.35	25.18	0.15	0.13	99.33	7.26	18.65	100.05
Peddie-oxi-91	0.02	1.84	0.08	5.85	54.48	0.24	8.82	0.01	0.17	27.71	0.09	0.18	99.49	7.27	21.16	100.22
Peddie-oxi-92	0.01	0.10	0.00	13.63	53.29	0.30	11.19	0.01	0.22	20.56	0.07	0.17	99.56	3.80	17.14	99.94
Peddie-oxi-93	0.00	1.93	0.00	0.92	58.99	0.37	7.85	0.01	0.42	28.71	0.11	0.13	99.44	7.65	21.82	100.21
Peddie-oxi-94	0.00	2.94	0.00	2.15	50.47	0.36	8.11	0.00	0.44	34.04	0.21	0.15	98.87	13.04	22.30	100.17
Peddie-oxi-95	0.00	0.27	0.00	14.12	50.85	0.21	9.99	0.00	0.23	22.91	0.13	0.16	98.89	4.56	18.81	99.35
Peddie-oxi-96	0.03	0.06	0.01	11.34	54.83	0.31	10.98	0.00	0.34	21.51	0.09	0.15	99.64	4.96	17.05	100.13
Peddie-oxi-97	0.01	0.00	0.01	14.40	52.33	0.34	11.69	0.01	0.24	19.88	0.12	0.15	99.18	3.96	16.31	99.58
Peddie-oxi-98	0.01	0.90	0.00	12.05	52.68	0.40	10.77	0.00	0.30	22.02	0.13	0.19	99.47	4.22	18.23	99.89
Peddie-oxi-99	0.02	0.06	0.04	14.68	55.73	0.28	12.14	0.01	0.25	16.34	0.07	0.16	99.77	0.56	15.83	99.83
Peddie-oxi-100	0.02	0.42	0.00	7.81	57.06	0.17	10.25	0.00	0.36	23.02	0.11	0.17	99.38	6.05	17.57	99.99
Peddie-oxi-101	0.00	0.01	0.02	12.71	55.23	0.34	11.27	0.00	0.29	19.55	0.07	0.15	99.64	3.02	16.84	99.94
Peddie-oxi-102	0.02	0.12	0.00	6.64	58.10	0.22	9.11	0.00	0.29	24.68	0.09	0.19	99.45	6.25	19.05	100.08
Peddie-oxi-103	0.02	0.37	0.01	10.14	53.36	0.22	9.60	0.00	0.36	25.07	0.11	0.14	99.38	6.71	19.03	100.06
Peddie-oxi-104	0.00	0.05	0.02	12.77	55.94	0.25	11.33	0.01	0.24	19.08	0.05	0.16	99.89	2.57	16.76	100.15
Peddie-oxi-105	0.02	0.17	0.00	13.68	55.46	0.29	11.26	0.00	0.29	18.26	0.06	0.18	99.68	1.35	17.05	99.81
Peddie-oxi-106	0.02	0.23	0.00	10.42	52.04	0.20	9.73	0.01	0.36	26.13	0.17	0.14	99.46	8.28	18.69	100.29
Peddie-oxi-107	0.02	0.09	0.00	10.02	56.31	0.32	11.43	0.00	0.21	20.78	0.08	0.11	99.38	5.01	16.27	99.88
Peddie-oxi-108	0.00	0.11	0.00	12.15	54.95	0.29	11.38	0.00	0.29	19.71	0.05	0.15	99.09	3.66	16.41	99.46
Peddie-oxi-109	0.00	0.33	0.00	16.83	49.47	0.17	11.89	0.00	0.23	20.57	0.11	0.18	99.78	4.41	16.60	100.22
Peddie-oxi-110	0.01	0.56	0.00	13.00	50.50	0.13	9.92	0.00	0.16	24.36	0.14	0.13	98.92	5.93	19.02	99.52
Peddie-oxi-111	0.00	0.28	0.00	12.79	54.08	0.42	11.16	0.00	0.32	20.37	0.11	0.14	99.66	3.39	17.32	100.00
Peddie-oxi-112	0.02	0.97	0.05	8.07	51.69	0.38	9.13	0.00	0.39	28.15	0.16	0.15	99.15	8.92	20.12	100.04
Peddie-oxi-113	0.01	0.05	0.02	12.39	52.78	0.23	11.26	0.00	0.28	22.14	0.08	0.18	99.42	6.13	16.62	100.03
Peddie-oxi-114	0.02	0.13	0.00	16.39	54.06	0.36	12.65	0.02	0.21	15.87	0.09	0.19	99.97	0.39	15.51	100.01
Peddie-oxi-115	0.02	0.16	0.00	7.91	56.09	0.27	9.19	0.01	0.40	24.90	0.10	0.14	99.21	6.49	19.07	99.86
Peddie-oxi-116	0.00	0.33	0.00	12.34	55.07	0.30	11.47	0.00	0.24	19.40	0.07	0.13	99.36	3.05	16.66	99.67
Peddie-oxi-118	0.01	0.42	0.04	9.49	53.07	0.35	9.76	0.00	0.29	26.06	0.10	0.16	99.74	7.69	19.14	100.51
Peddie-oxi-119	0.02	0.73	0.02	9.78	57.51	0.33	8.96	0.00	0.23	22.13	0.05	0.15	99.93	1.55	20.74	100.09
Peddie-oxi-121	0.00	0.11	0.00	12.72	54.47	0.27	11.31	0.00	0.30	20.26	0.09	0.13	99.67	3.89	16.76	100.06
Peddie-oxi-122	0.00	0.68	0.00	9.02	51.60	0.14	9.12	0.00	0.43	27.61	0.12	0.13	98.84	9.02	19.49	99.74
Peddie-oxi-123	0.02	4.48	0.00	1.37	54.82	0.32	9.04	0.00	0.30	28.22	0.14	0.09	98.80	6.66	22.23	99.47
Peddie-oxi-124	0.02	0.15	0.02	10.29	53.80	0.30	9.88	0.00	0.34	24.11	0.09	0.15	99.14	6.25	18.49	99.77
Peddie-oxi-125	0.02	1.17	0.00	5.63	54.34	0.26	8.68	0.00	0.44	27.85	0.16	0.12	98.66	8.53	20.17	99.51
Peddie-oxi-126	0.01	0.52	0.01	10.68	51.75	0.23	10.25	0.00	0.28	25.02	0.10	0.19	99.06	7.58	18.20	99.82
Peddie-oxi-127	0.00	2.55	0.00	0.90	55.09	0.49	7.72	0.01	0.46	31.55	0.16	0.13	99.05	9.97	22.58	100.05
Peddie-oxi-128	0.00	1.88	0.00	0.88	58.79	0.35	7.81	0.00	0.53	28.44	0.10	0.15	98.94	7.70	21.52	99.71
Peddie-oxi-129	0.02	0.83	0.00	6.81	54.06	0.35	8.97	0.00	0.25	27.34	0.13	0.10	98.86	8.11	20.04	99.67
Peddie-oxi-130	0.03	0.24	0.03	8.19	57.68	0.21	10.35	0.00	0.40	21.98	0.07	0.17	99.36	5.09	17.40	99.87
Peddie-oxi-131	0.27	0.06	0.00	7.85	62.63	0.17	13.74	0.00	0.19	14.31	0.12	0.06	99.41	2.07	12.45	99.62
Peddie-oxi-133	0.00	0.38	0.02	7.82	54.88	0.28	9.05	0.00	0.59	25.96	0.09	0.16	99.23	7.38	19.32	99.97

Peddie. Chromite. continued

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
Peddie-oxi-134	0.00	2.27	0.00	0.88	55.99	0.46	7.57	0.00	0.45	31.01	0.17	0.14	98.96	9.47	22.49	99.91
Peddie-oxi-135	0.00	0.05	0.09	13.82	56.91	0.20	12.69	0.02	0.16	15.99	0.10	0.12	100.15	1.15	14.96	100.26
Peddie-oxi-136	0.02	2.49	0.00	0.90	55.66	0.31	7.83	0.01	0.33	31.17	0.14	0.11	98.99	9.92	22.25	99.98
Peddie-oxi-137	0.02	1.02	0.03	13.61	44.82	0.21	10.20	0.01	0.32	28.84	0.24	0.13	99.45	10.67	19.24	100.52
Peddie-oxi-140	0.03	0.61	0.02	10.04	51.77	0.44	9.93	0.00	0.33	25.80	0.10	0.19	99.24	7.51	19.04	99.99
Peddie-oxi-141	0.00	0.31	0.04	8.87	56.76	0.25	10.74	0.00	0.26	22.01	0.08	0.14	99.45	5.35	17.20	99.98
Peddie-oxi-142	0.01	0.48	0.00	9.13	52.74	0.25	8.66	0.00	0.38	27.18	0.12	0.15	99.11	7.64	20.31	99.87
Peddie-oxi-143	0.02	0.29	0.01	16.76	48.17	0.30	11.21	0.00	0.29	22.52	0.12	0.15	99.85	5.23	17.81	100.37
Peddie-oxi-144	0.03	0.42	0.05	8.17	56.57	0.23	10.42	0.00	0.33	22.96	0.10	0.15	99.43	5.97	17.59	100.03
Peddie-oxi-145	0.00	1.12	0.00	7.96	55.67	0.29	9.33	0.00	0.21	24.35	0.08	0.19	99.21	4.96	19.89	99.70
Peddie-oxi-146	0.00	1.04	0.00	8.38	55.98	0.25	9.44	0.00	0.24	23.51	0.09	0.23	99.14	4.41	19.54	99.58
Peddie-oxi-147	0.01	0.02	0.04	13.10	53.36	0.14	11.41	0.02	0.37	20.85	0.12	0.13	99.57	5.08	16.28	100.08
Peddie-oxi-148	0.01	0.08	0.00	12.79	53.10	0.27	11.21	0.01	0.30	21.23	0.10	0.18	99.28	5.00	16.73	99.78
Peddie-oxi-149	0.01	0.13	0.00	10.55	54.15	0.30	10.24	0.01	0.47	23.53	0.07	0.17	99.63	6.19	17.96	100.25
Peddie-oxi-151	0.01	0.29	0.01	5.54	54.15	0.45	9.17	0.00	0.31	28.35	0.10	0.12	98.50	10.28	19.10	99.53
Peddie-oxi-152	0.00	0.62	0.00	7.28	53.23	0.24	8.74	0.00	0.29	28.29	0.13	0.13	98.95	9.12	20.08	99.87
Peddie-oxi-153	0.01	0.15	0.00	10.13	56.46	0.28	10.69	0.01	0.56	21.46	0.08	0.14	99.97	4.76	17.18	100.44
Peddie-oxi-154	0.01	0.14	0.02	13.29	53.00	0.13	11.67	0.00	0.20	20.41	0.09	0.18	99.15	4.88	16.02	99.64

Peddie, Ilmenite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total	ilmenite	geikelite	hematite	Total
-oxi-1	0.05	53.75	0.12	0.41	0.40	0.00	11.02	0.02	0.22	33.08	0.08	0.02	99.18	5.05	28.54	99.68	56.58	38.93	4.50	100.00
-oxi-2	0.01	54.37	0.12	0.50	0.60	0.00	12.38	0.02	0.27	30.49	0.07	0.00	98.83	4.30	26.62	99.26	52.57	43.59	3.84	100.00
-oxi-3	0.02	50.11	0.34	0.13	0.29	0.16	8.59	0.00	0.40	38.44	0.03	0.04	98.57	9.46	29.93	99.51	60.47	30.93	8.60	100.00
-oxi-4	0.02	53.20	0.13	0.42	0.18	0.05	11.15	0.03	0.30	33.60	0.05	0.02	99.15	6.44	27.81	99.80	54.98	39.29	5.73	100.00
-oxi-5	0.01	53.06	0.19	0.27	0.45	0.02	10.96	0.04	0.20	33.06	0.04	0.04	98.35	5.51	28.10	98.90	56.08	38.97	4.94	100.00
-oxi-6	0.00	54.98	0.13	0.24	0.57	0.00	11.44	0.00	0.26	32.82	0.07	0.00	100.53	4.40	28.86	100.97	56.35	39.79	3.86	100.00
-oxi-7	0.01	53.51	0.26	0.40	0.60	0.00	11.92	0.03	0.35	32.21	0.08	0.01	99.38	6.12	26.70	99.99	52.65	41.90	5.44	100.00
-oxi-8	0.00	53.53	0.11	0.38	0.68	0.00	11.56	0.01	0.25	32.16	0.09	0.00	98.77	5.39	27.31	99.31	54.25	40.93	4.82	100.00
-oxi-9	0.01	54.53	0.07	0.42	0.67	0.03	12.84	0.03	0.26	30.26	0.08	0.00	99.19	4.82	25.92	99.67	50.84	44.89	4.27	100.00
-oxi-10	0.01	52.85	0.05	0.45	0.86	0.00	11.11	0.00	0.30	32.95	0.10	0.00	98.68	6.16	27.41	99.29	54.82	39.62	5.56	100.00
-oxi-11	0.01	54.24	0.06	0.37	0.48	0.00	11.72	0.02	0.22	31.84	0.06	0.00	99.01	4.63	27.67	99.47	54.63	41.25	4.13	100.00
-oxi-12	0.00	53.38	0.26	0.14	0.36	0.00	10.94	0.00	0.27	33.77	0.02	0.00	99.15	5.86	28.50	99.74	56.28	38.51	5.21	100.00
-oxi-13	0.03	54.18	0.03	0.43	0.39	0.00	12.67	0.03	0.19	31.27	0.09	0.01	99.31	5.97	25.90	99.91	50.60	44.14	5.26	100.00
-oxi-14	0.00	53.59	0.04	0.38	0.43	0.01	11.27	0.01	0.28	32.83	0.03	0.05	98.91	5.57	27.81	99.46	55.16	39.85	4.99	100.00
-oxi-15	0.02	52.13	0.24	0.22	0.82	0.02	10.58	0.02	0.31	34.87	0.05	0.00	99.28	7.67	27.97	100.05	55.61	37.51	6.88	100.00
-oxi-16	0.02	53.39	0.08	0.32	0.52	0.00	10.79	0.01	0.27	33.46	0.08	0.02	98.97	5.50	28.52	99.52	56.78	38.29	4.93	100.00
-oxi-17	0.03	53.37	0.15	0.27	0.44	0.02	11.55	0.04	0.27	32.85	0.05	0.01	99.05	6.22	27.25	99.67	53.83	40.65	5.52	100.00
-oxi-18	0.02	52.93	0.29	0.20	0.54	0.00	10.97	0.01	0.29	33.52	0.04	0.02	98.82	6.12	28.01	99.44	55.69	38.85	5.46	100.00
-oxi-19	0.00	52.72	0.16	0.25	0.67	0.00	10.23	0.03	0.25	34.67	0.09	0.00	99.08	6.34	28.96	99.72	57.89	36.42	5.69	100.00
-oxi-20	0.02	52.46	0.19	0.26	0.51	0.17	10.31	0.02	0.29	34.51	0.02	0.00	98.78	6.16	28.96	99.40	57.80	36.67	5.54	100.00
-oxi-21	0.00	52.87	0.14	0.26	0.60	0.00	11.91	0.02	0.31	32.61	0.04	0.02	98.79	7.26	26.08	99.52	51.57	41.97	6.46	100.00
-oxi-22	0.02	53.00	0.18	0.23	0.50	0.11	10.90	0.00	0.24	33.22	0.09	0.05	98.55	5.51	28.26	99.11	56.33	38.72	4.95	100.00
-oxi-23	0.02	53.31	0.21	0.26	0.49	0.00	11.00	0.01	0.34	33.01	0.05	0.04	98.75	5.42	28.14	99.29	56.09	39.06	4.85	100.00
-oxi-24	0.03	53.87	0.16	0.28	0.54	0.01	11.68	0.00	0.29	32.02	0.09	0.00	98.96	5.07	27.45	99.47	54.34	41.17	4.50	100.00
-oxi-25	0.01	52.48	0.16	0.25	0.76	0.16	10.52	0.02	0.26	33.79	0.06	0.00	98.48	5.82	28.55	99.06	57.18	37.56	5.26	100.00
-oxi-26	0.03	53.96	0.12	0.53	0.69	0.10	12.17	0.02	0.27	30.64	0.12	0.05	98.69	4.39	26.69	99.13	53.02	43.07	3.91	100.00
-oxi-27	0.02	54.11	0.18	0.38	0.73	0.00	12.74	0.03	0.25	30.46	0.10	0.01	99.01	5.20	25.79	99.53	50.72	44.67	4.61	100.00
-oxi-28	0.02	52.27	0.29	0.32	0.41	0.02	10.18	0.02	0.27	34.98	0.04	0.03	98.85	6.79	28.87	99.53	57.66	36.23	6.10	100.00
-oxi-29	0.01	53.78	0.19	0.20	0.50	0.00	11.26	0.01	0.36	32.79	0.07	0.00	99.18	5.25	28.07	99.71	55.59	39.74	4.67	100.00
-oxi-30	0.01	52.50	0.12	0.57	3.82	0.00	13.61	0.02	0.23	27.94	0.12	0.02	98.96	5.82	22.71	99.55	45.80	48.92	5.28	100.00
-oxi-32	0.00	53.21	0.21	0.34	0.57	0.03	11.03	0.02	0.34	33.17	0.05	0.04	99.01	5.74	28.01	99.59	55.75	39.12	5.13	100.00
-oxi-33	0.04	53.10	0.20	0.29	0.45	0.00	11.08	0.03	0.28	33.07	0.06	0.02	98.61	5.76	27.88	99.19	55.51	39.32	5.18	100.00
-oxi-34	0.01	55.72	0.09	0.49	0.81	0.00	13.63	0.01	0.24	28.30	0.13	0.00	99.43	3.06	25.54	99.73	49.88	47.43	2.69	100.00
-oxi-35	0.01	53.51	0.10	0.39	0.46	0.06	11.10	0.02	0.24	32.75	0.06	0.01	98.71	5.05	28.20	99.21	56.14	39.35	4.51	100.00
-oxi-36	0.03	52.24	0.15	0.24	0.64	0.00	10.25	0.00	0.33	34.63	0.03	0.04	98.57	6.79	28.52	99.25	57.21	36.65	6.14	100.00
-oxi-37	0.03	53.72	0.20	0.34	0.58	0.00	11.24	0.01	0.21	33.01	0.05	0.05	99.43	5.35	28.20	99.97	55.71	39.55	4.74	100.00
-oxi-38	0.02	55.11	0.16	0.36	0.54	0.01	13.37	0.03	0.24	28.99	0.06	0.03	98.93	3.81	25.57	99.31	50.05	46.62	3.34	100.00
-oxi-39	0.02	54.04	0.14	0.22	0.46	0.00	11.07	0.00	0.32	33.17	0.07	0.00	99.52	5.02	28.66	100.02	56.58	38.96	4.46	100.00
-oxi-40	0.00	53.03	0.18	0.16	0.69	0.16	10.36	0.02	0.27	34.59	0.06	0.03	99.56	5.88	29.30	100.15	58.11	36.63	5.26	100.00
-oxi-41	0.02	50.94	0.29	0.15	0.51	0.09	9.15	0.01	0.31	37.30	0.01	0.01	98.79	8.53	29.63	99.64	59.54	32.76	7.70	100.00
-oxi-42	0.02	53.77	0.08	0.22	0.56	0.00	11.22	0.03	0.29	32.64	0.05	0.00	98.87	5.06	28.09	99.37	55.78	39.70	4.52	100.00
-oxi-43	0.02	52.49	0.16	0.25	0.54	0.01	10.37	0.01	0.36	34.20	0.04	0.00	98.45	6.32	28.52	99.08	57.22	37.08	5.70	100.00
-oxi-44	0.02	53.31	0.20	0.28	0.43	0.13	10.84	0.02	0.29	33.33	0.06	0.01	98.93	5.15	28.69	99.45	57.00	38.39	4.62	100.00
-oxi-46	0.00	52.34	0.14	0.12	0.54	0.04	10.36	0.02	0.33	34.51	0.07	0.00	98.46	6.80	28.39	99.15	56.88	36.99	6.13	100.00
-oxi-47	0.03	53.01	0.13	0.29	0.81	0.12	11.02	0.02	0.27	33.17	0.05	0.01	98.91	5.69	28.05	99.48	55.81	39.08	5.10	100.00
-oxi-48	0.01	50.47	0.21	0.14	0.34	0.11	8.54	0.01	0.33	38.69	0.06	0.02	98.93	9.48	30.16	99.88	60.75	30.66	8.59	100.00
-oxi-49	0.01	53.79	0.19	0.41	0.60	0.00	11.61	0.01	0.32	32.43	0.05	0.00	99.41	5.48	27.50	99.95	54.31	40.84	4.85	100.00
-oxi-50	0.01	54.36	0.19	0.41	0.55	0.10	12.52	0.03	0.28	31.03	0.04	0.01	99.53	4.94	26.59	100.03	52.00	43.65	4.35	100.00
-oxi-51	0.05	54.36	0.14	0.46	1.12	0.00	12.71	0.03	0.29	30.32	0.10	0.01	99.60	4.79	26.01	100.08	51.18	44.57	4.24	100.00
-oxi-52	0.02	53.47	0.25	0.23	0.51	0.02	10.96	0.03	0.28	33.08	0.03	0.02	98.90	5.07	28.51	99.40	56.65	38.81	4.54	100.00
-oxi-53	0.02	53.58	0.12	0.33	0.39	0.00	11.33	0.02	0.25	32.80	0.09	0.03	98.96	5.62	27.74	99.52	54.99	40.01	5.00	100.00
-oxi-54	0.03	53.54	0.11	0.28	0.63	0.00	12.33	0.02	0.23	31.22	0.07	0.00	98.47	5.79	26.00	99.05	51.41	43.44	5.16	100.00
-oxi-55	0.03	53.76	0.17	0.21	0.44	0.00	10.91	0.02	0.29	33.10	0.04	0.04	99.01	4.86	28.73	99.50	57.05	38.61	4.34	100.00
-oxi-56	0.02	54.52	0.11	0.31	0.52	0.08	12.62	0.02	0.23	30.13	0.05	0.03	98.63	4.07	26.47	99.03	52.12	44.28	3.60	100.00
-oxi-57	0.01	51.10	0.33	0.13	0.31	0.22	9.46	0.00	0.32	36.72	0.04	0.00	98.65	8.08	29.45	99.46	58.96	33.75	7.28	100.00
-oxi-58	0.00	53.07	0.18	0.24	1.01	0.00	10.76	0.01	0.27	34.10	0.10	0.00	99.74	6.39	28.35	100.38	56.27	38.04	5.69	100.00
-oxi-59	0.04	53.68	0.07	0.38	0.34	0.00	11.24	0.02	0.29	32.87	0.07	0.05	99.04	5.49	27.93	99.59	55.39	39.72	4.89	100.00
-oxi-60	0.01	52.98	0.16	0.27	0.68	0.03	11.94	0.02	0.25	32.26	0.05	0.01	98.67	6.66	26.26	99.34	51.96	42.10	5.93	100.00
-oxi-61	0.00	52.28	0.15	0.21	0.69	0.03	10.62	0.00	0.36	34.38	0.08	0.01	98.79	7.26	27.84	99.52	55.65	37.82	6.53	100.00
-oxi-62	0.02	53.74	0.12	0.37	0.40	0.00	11.25	0.02	0.23	32.78	0.06	0.00	98.98	5.17	28.12	99.50	55.68	39.70	4.62	100.00
-oxi-63	0.01	54.06	0.13	0.52	0.68	0.09	12.16	0.03	0.23	31.36	0.09	0.06	99.41	5.04	26.83	99.92	52.85	42.69	4.46	100.00
-oxi-64	0.00	52.40	0.30	0.37	1.60	0.18	12.73	0.02	0.43	30.76	0.10	0.01	98.90	6.96	24.49	99.59	48.66	45.10	6.24	100.00
-oxi-65	0.01	53.29	0.09	0.33	0.73	0.00	11.16	0.02	0.20	33.16	0.05	0.03	99.07	5.91	27.84	99.66	55.25	39.47	5.28	100.00
-oxi-66	0.01	53.54	0.12	0.44	0.40	0.00	11.28	0.01	0.31	33.04	0.07	0.03	99.26	5.87	27.76	99.85	54.98	39.80	5.22	100.00
-oxi-67	0.04	53.46	0.14	0.40	0.64	0.00	10.97	0.00	0.28	33.12	0.07	0.02	99.13	5.32	28.34	99.66	56.39	38.87	4.74	100.00
-oxi-68	0.01	53.44	0.04	0.49	2.87	0.00	12.91	0.00	0.18	29.00	0.14	0.03	99.11	4.71	24.76	99.58	49.64	46.12	4.25	100.00
-oxi-69	0.03	52.70	0.21	0.28	0.90	0.00	10.73	0.02	0.31	33.87	0.03	0.05	99.13	6.40	28.11	99.77	56.11	38.15	5.74	100.00
-oxi-70	0.02	53.43	0.09	0.33	0.69	0.00	11.31	0.01	0.35	32.33	0.07	0.02	98.64	5.29	27.57	99.17	55.01	40.23	4.76	100.00

Peddie. Ilmenite. continued

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total	ilmenite	geikielite	hematite	Total
-oxi-71	0.00	54.49	0.10	0.35	0.71	0.00	11.61	0.01	0.21	31.93	0.06	0.00	99.48	4.22	28.13	99.91	55.47	40.79	3.74	100.00
-oxi-72	0.01	52.36	0.22	0.22	0.68	0.00	10.34	0.00	0.36	34.43	0.05	0.04	98.72	6.64	28.45	99.39	57.07	36.95	5.98	100.00
-oxi-73	0.03	53.32	0.22	0.21	0.52	0.07	10.78	0.03	0.31	33.21	0.03	0.02	98.74	4.96	28.74	99.23	57.24	38.28	4.47	100.00
-oxi-74	0.02	52.94	0.18	0.21	1.06	0.00	10.98	0.03	0.27	33.54	0.07	0.05	99.34	6.33	27.85	99.97	55.39	38.93	5.68	100.00
-oxi-75	0.02	53.17	0.12	0.25	0.49	0.19	11.05	0.00	0.27	33.30	0.04	0.03	98.95	5.62	28.24	99.51	55.96	39.02	5.02	100.00
-oxi-85	0.01	53.41	0.21	0.26	0.52	0.12	11.05	0.01	0.24	33.44	0.06	0.00	99.33	5.54	28.46	99.89	56.19	38.89	4.92	100.00
-oxi-117	0.02	53.18	0.18	0.27	0.61	0.04	10.93	0.01	0.35	33.21	0.05	0.01	98.86	5.55	28.21	99.42	56.20	38.81	4.99	100.00
-oxi-120	0.03	54.97	0.16	0.30	0.63	0.00	13.22	0.01	0.32	29.44	0.07	0.00	99.15	4.17	25.69	99.57	50.23	46.09	3.68	100.00
-oxi-132	0.02	54.00	0.13	0.40	0.33	0.13	11.93	0.02	0.28	31.86	0.10	0.01	99.19	5.11	27.26	99.70	53.64	41.83	4.53	100.00
-oxi-138	0.02	53.73	0.19	0.34	0.58	0.00	11.90	0.04	0.23	31.69	0.03	0.01	98.75	5.19	27.02	99.27	53.44	41.94	4.62	100.00
-oxi-139	0.01	53.42	0.22	0.27	0.49	0.07	11.15	0.01	0.20	33.20	0.08	0.02	99.12	5.52	28.24	99.68	55.79	39.28	4.92	100.00

Peddie. Pyroxene-GSC

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
peddie2-1	54.47	0.23	1.37	0.20	17.13	20.28	0.11	4.22	0.00	1.30	0.02	99.34
peddie2-2	54.95	0.48	3.31	0.14	16.46	17.70	0.10	4.41	0.05	2.32	0.02	99.94
peddie2-3	55.21	0.16	0.65	0.15	16.84	22.36	0.07	3.55	0.05	0.95	0.01	100.00
peddie2-4	54.79	0.22	1.03	0.17	16.72	20.99	0.09	3.92	0.01	1.35	0.01	99.29
peddie2-5	54.72	0.46	3.82	0.11	16.17	17.08	0.15	4.78	0.00	2.56	0.03	99.86
peddie2-6	54.78	0.18	0.69	0.20	16.79	22.29	0.07	3.85	0.02	0.97	0.00	99.83
peddie2-7	54.32	0.17	0.85	0.31	16.15	20.78	0.13	5.20	0.00	1.44	0.01	99.36
peddie2-8	54.74	0.22	1.15	0.16	15.87	20.67	0.09	4.90	0.01	1.61	0.01	99.43
peddie2-9	54.84	0.48	3.33	0.13	16.66	17.60	0.16	4.28	0.02	2.27	0.02	99.78
peddie2-10	54.80	0.26	1.21	0.21	16.64	20.47	0.12	4.62	0.02	1.53	0.01	99.89
peddie2-11	54.56	0.46	2.91	0.08	16.66	17.73	0.15	4.71	0.01	2.10	0.01	99.38
peddie2-12	54.84	0.19	0.44	0.17	16.92	22.56	0.10	3.67	0.01	0.83	0.00	99.73
peddie2-13	54.84	0.47	3.39	0.17	16.61	17.51	0.11	4.27	0.02	2.43	0.02	99.84
peddie2-14	54.78	0.24	1.05	0.21	17.01	21.79	0.08	3.47	0.00	1.11	0.02	99.75
peddie2-15	54.30	0.49	3.38	0.16	16.41	17.50	0.11	4.37	0.03	2.42	0.02	99.17
peddie2-16	54.75	0.49	3.46	0.14	16.44	17.55	0.09	4.45	0.01	2.44	0.02	99.82
peddie2-17	54.56	0.24	1.11	0.13	16.68	21.26	0.07	3.94	0.02	1.24	0.00	99.25
peddie2-18	54.58	0.51	3.61	0.16	15.90	17.24	0.16	4.98	0.02	2.60	0.02	99.78
peddie2-19	54.42	0.20	0.80	0.34	15.95	20.99	0.11	5.02	0.01	1.40	0.01	99.24
peddie2-20	54.59	0.21	0.82	0.50	16.87	21.91	0.07	3.53	0.04	1.09	0.01	99.64
peddie2-21	54.67	0.37	2.23	0.71	17.80	18.65	0.08	3.53	0.03	1.63	0.02	99.72
peddie2-22	54.58	0.47	3.23	0.22	16.43	17.49	0.12	4.61	0.02	2.27	0.01	99.45
peddie2-23	54.50	0.20	0.52	0.57	16.83	22.25	0.07	3.27	0.04	1.05	0.02	99.30
peddie2-24	54.68	0.41	3.07	0.03	16.63	17.73	0.12	4.68	0.00	2.12	0.02	99.47
peddie2-25	54.43	0.22	0.76	0.33	16.17	20.96	0.09	5.13	0.03	1.41	0.01	99.57
peddie2-26	54.49	0.45	3.28	0.16	16.71	17.79	0.11	4.51	0.03	2.32	0.01	99.85
peddie2-27	54.59	0.46	3.74	0.06	15.85	16.97	0.14	4.81	0.00	2.59	0.02	99.21
peddie2-28	54.84	0.50	3.33	0.09	16.53	17.75	0.15	4.38	0.00	2.33	0.01	99.90
peddie2-29	55.12	0.11	1.23	0.09	28.99	2.39	0.28	11.28	0.07	0.02	0.00	99.59
peddie2-30	54.36	0.60	4.00	0.09	15.51	17.15	0.15	4.71	0.02	2.81	0.02	99.41
peddie2-31	54.71	0.49	3.33	0.14	16.51	17.47	0.09	4.34	0.03	2.42	0.02	99.56
peddie2-32	54.80	0.46	3.40	0.13	16.67	17.66	0.06	4.25	0.00	2.41	0.01	99.85
peddie2-33	54.81	0.50	3.46	0.14	16.40	17.63	0.11	4.30	0.02	2.43	0.02	99.83
peddie2-34	54.99	0.27	1.11	0.27	17.34	20.77	0.11	3.79	0.03	1.28	0.03	99.97
peddie2-35	54.69	0.18	0.52	0.11	16.64	22.74	0.09	3.59	0.00	0.91	0.00	99.48
peddie2-36	54.88	0.48	3.33	0.09	16.72	17.80	0.14	4.42	0.04	2.30	0.01	100.21
peddie2-37	54.60	0.45	3.25	0.09	16.83	17.51	0.13	4.43	0.00	2.35	0.02	99.65
peddie2-38	54.50	0.21	0.88	0.39	16.84	21.31	0.08	3.62	0.02	1.08	0.02	98.93

Peddie. Olivine

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Peddie-oli-1	41.09	0.00	0.00	0.00	50.91	0.01	0.12	7.28	0.33	0.00	0.00	99.74
Peddie-oli-2	40.99	0.00	0.00	0.00	50.58	0.00	0.16	7.39	0.35	0.01	0.01	99.49
Peddie-oli-3	41.22	0.00	0.00	0.00	50.68	0.00	0.18	7.27	0.26	0.00	0.05	99.66
Peddie-oli-4	41.10	0.02	0.00	0.02	50.31	0.00	0.15	8.02	0.32	0.00	0.00	99.95
Peddie-oli-5	40.67	0.00	0.00	0.00	49.58	0.01	0.15	9.07	0.46	0.00	0.00	99.94
Peddie-oli-6	41.06	0.00	0.00	0.01	50.45	0.00	0.11	7.40	0.36	0.00	0.00	99.39
Peddie-oli-7	41.49	0.00	0.00	0.01	50.48	0.00	0.16	8.07	0.37	0.01	0.00	100.60
Peddie-oli-8	40.94	0.00	0.00	0.00	50.29	0.00	0.18	8.12	0.36	0.00	0.00	99.90
Peddie-oli-9	40.88	0.02	0.00	0.00	50.11	0.03	0.14	8.52	0.41	0.00	0.01	100.12
Peddie-oli-10	40.99	0.00	0.00	0.00	50.08	0.01	0.14	8.26	0.37	0.00	0.00	99.85
Peddie-oli-11	40.31	0.04	0.00	0.01	46.49	0.02	0.11	12.98	0.10	0.01	0.00	100.06

Seed. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Seed-1	purple-red	40.86	0.94	17.14	7.21	20.20	6.18	0.27	6.38	0.00	0.05	0.00	99.23
Seed-2	purple-red	40.56	0.89	16.29	7.86	19.90	6.61	0.36	6.38	0.00	0.04	0.00	98.89
Seed-3	purple-red	40.97	0.33	17.34	7.86	19.83	6.50	0.29	6.65	0.00	0.04	0.00	99.80
Seed-4	purple-red	40.80	0.44	16.56	8.35	19.32	6.44	0.31	6.89	0.00	0.03	0.00	99.13
Seed-5	red	41.64	0.48	22.82	0.19	19.43	4.44	0.39	11.00	0.00	0.06	0.03	100.46
Seed-6	red	40.73	1.16	15.75	8.48	19.76	6.64	0.27	6.45	0.02	0.06	0.00	99.31
Seed-7	red	41.08	0.61	18.73	5.70	20.50	5.87	0.32	6.69	0.00	0.03	0.00	99.53
Seed-8	red	41.70	0.12	19.95	4.83	20.74	5.60	0.25	6.82	0.01	0.02	0.00	100.03
Seed-9	red	41.50	0.55	18.81	5.46	20.37	5.88	0.36	6.77	0.00	0.03	0.00	99.72
Seed-10	red	41.33	0.89	17.85	6.05	19.88	5.96	0.35	7.61	0.00	0.06	0.02	100.00
Seed-12	red	41.05	1.67	20.52	1.23	18.91	6.37	0.40	10.06	0.00	0.07	0.00	100.27
Seed-13	red	41.63	0.53	20.05	4.00	20.89	5.39	0.27	6.73	0.00	0.04	0.00	99.52
Seed-14	red	41.73	0.52	19.90	4.08	21.02	5.52	0.28	6.81	0.00	0.04	0.00	99.90
Seed-16	red	41.28	1.96	20.92	0.62	20.47	4.99	0.29	9.60	0.00	0.10	0.03	100.25
Seed-17	red	41.51	0.72	18.39	5.63	20.94	5.87	0.19	6.47	0.01	0.02	0.00	99.76
Seed-18	red	41.73	0.45	22.74	0.16	19.39	4.29	0.38	11.01	0.02	0.06	0.02	100.23
Seed-19	red	41.45	0.44	19.60	4.82	20.72	5.50	0.30	6.60	0.01	0.03	0.01	99.49
Seed-20	red	41.19	0.53	18.58	6.22	20.42	6.00	0.24	6.58	0.01	0.03	0.00	99.80
Seed-21	red	41.35	0.87	22.06	0.68	20.18	4.54	0.36	9.81	0.00	0.05	0.00	99.90
Seed-22	red	41.61	0.18	20.69	3.90	20.90	5.26	0.29	7.15	0.00	0.03	0.00	100.00
Seed-23	red	41.58	1.23	21.51	0.67	19.83	5.36	0.38	9.61	0.00	0.09	0.00	100.26
Seed-24	red	40.88	1.11	16.11	8.24	19.97	6.58	0.27	6.55	0.01	0.06	0.00	99.78
Seed-26	red	41.69	0.61	19.16	4.98	20.94	5.57	0.28	6.53	0.00	0.02	0.02	99.80
Seed-27	red	40.88	0.91	16.43	8.23	19.88	6.71	0.28	6.34	0.02	0.03	0.00	99.72
Seed-28	red	41.30	0.58	18.74	5.49	20.25	5.65	0.31	7.15	0.00	0.06	0.00	99.53
Seed-29	red	42.13	0.17	20.32	4.19	21.32	5.30	0.25	6.57	0.04	0.03	0.01	100.35
Seed-30	red	40.60	0.40	16.60	8.56	19.46	6.69	0.33	7.06	0.02	0.02	0.00	99.74
Seed-33	red	41.96	0.71	20.52	2.69	21.33	4.77	0.24	7.64	0.03	0.05	0.02	99.96
Seed-34	red	41.91	0.06	19.70	5.16	20.59	5.71	0.26	6.33	0.06	0.02	0.00	99.79
Seed-35	red	41.54	0.57	22.56	0.22	19.31	4.30	0.40	10.94	0.03	0.07	0.02	99.95
Seed-36	red	41.16	0.75	17.40	7.01	20.49	6.11	0.30	6.78	0.01	0.02	0.00	100.04
Seed-37	red	41.13	1.05	17.57	5.97	20.19	5.94	0.27	7.82	0.00	0.05	0.00	99.99
Seed-38	red	41.14	1.05	17.44	6.28	20.55	6.11	0.26	6.66	0.02	0.06	0.00	99.57
Seed-39	red	41.68	0.47	22.85	0.17	19.42	4.42	0.40	11.13	0.01	0.06	0.00	100.60
Seed-40	red	41.86	0.67	22.29	0.82	20.32	4.78	0.33	8.80	0.00	0.06	0.00	99.94
Seed-41	red	41.24	1.01	17.94	5.81	20.58	5.84	0.24	7.07	0.03	0.07	0.00	99.82
Seed-42	red	41.78	0.74	19.63	4.43	21.07	5.70	0.31	6.75	0.04	0.05	0.00	100.50
Seed-43	red	41.81	0.21	19.10	5.57	20.36	5.81	0.34	6.92	0.00	0.02	0.00	100.14
Seed-44	red	41.67	0.49	19.85	4.06	20.89	5.48	0.27	6.70	0.02	0.03	0.00	99.45
Seed-45	red	41.77	0.66	21.00	2.43	20.41	4.83	0.34	8.88	0.00	0.08	0.00	100.41
Seed-46	red	40.61	1.16	15.97	8.08	20.08	6.62	0.20	6.62	0.04	0.05	0.00	99.43
Seed-47	red	41.28	0.52	19.53	4.72	20.36	5.48	0.28	7.32	0.03	0.02	0.01	99.55
Seed-48	red	41.92	0.59	20.58	3.30	20.49	5.60	0.32	7.52	0.00	0.04	0.03	100.39
Seed-49	red	41.09	0.56	18.36	6.12	20.36	6.02	0.35	6.65	0.02	0.04	0.00	99.57
Seed-50	red	40.85	1.10	16.91	7.17	19.38	6.47	0.30	7.74	0.02	0.07	0.01	100.02
Seed-51	red	41.99	0.51	20.03	4.05	21.09	5.53	0.27	6.80	0.03	0.02	0.00	100.34
Seed-52	red	41.28	0.48	18.67	6.17	20.31	5.90	0.30	6.57	0.05	0.02	0.00	99.74
Seed-53	red	41.80	0.72	19.63	4.95	21.23	5.56	0.30	6.68	0.03	0.03	0.00	100.93
Seed-54	red	41.64	0.71	19.11	5.02	21.07	5.60	0.25	6.33	0.00	0.03	0.00	99.76
Seed-55	red	41.15	0.94	17.93	6.00	20.67	5.98	0.26	6.70	0.04	0.05	0.02	99.75
Seed-56	red	41.48	0.46	19.17	5.04	20.46	5.49	0.28	7.09	0.03	0.02	0.00	99.54
Seed-57	red	41.07	0.92	17.42	6.93	20.22	6.15	0.21	6.85	0.03	0.05	0.02	99.86
Seed-58	red	41.15	1.04	18.23	5.52	20.61	5.79	0.29	6.98	0.00	0.06	0.00	99.65
Seed-59	red	41.25	0.77	19.14	4.72	20.42	5.38	0.27	7.25	0.02	0.06	0.00	99.29
Seed-60	red	41.21	0.50	18.65	6.17	20.41	5.99	0.29	6.62	0.00	0.02	0.00	99.86
Seed-62	red	41.98	0.58	20.20	3.72	21.82	5.23	0.25	6.39	0.00	0.05	0.01	100.22

Seed. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Seed-63	red	41.20	0.55	18.66	5.28	20.37	5.76	0.27	7.22	0.04	0.07	0.00	99.43
Seed-64	red	41.10	0.86	17.94	6.03	20.01	5.84	0.34	7.35	0.05	0.06	0.00	99.57
Seed-65	red	41.13	0.95	16.96	7.35	20.24	6.32	0.30	6.52	0.03	0.04	0.00	99.83
Seed-66	red	41.34	1.95	20.86	0.67	20.48	4.96	0.30	9.86	0.02	0.09	0.00	100.54
Seed-67	red	40.97	0.99	17.03	7.41	20.37	6.18	0.30	6.38	0.02	0.04	0.01	99.69
Seed-68	red	41.48	0.07	19.66	5.12	20.51	5.74	0.28	6.46	0.02	0.01	0.00	99.35
Seed-69	red	41.42	0.48	19.38	4.70	20.36	5.49	0.24	7.32	0.01	0.02	0.00	99.43
Seed-70	red	40.94	1.90	19.74	1.33	18.52	6.76	0.40	10.24	0.00	0.10	0.00	99.93
Seed-71	red	41.52	0.91	18.16	6.05	20.76	5.94	0.24	6.39	0.01	0.06	0.00	100.03
Seed-72	red	41.67	0.71	20.69	2.69	21.26	4.69	0.22	7.51	0.00	0.08	0.00	99.51
Seed-73	red	41.84	0.68	22.24	0.79	20.50	4.89	0.35	8.99	0.03	0.06	0.00	100.37
Seed-74	red	41.12	0.89	18.01	6.03	19.93	5.97	0.31	7.38	0.03	0.06	0.00	99.74
Seed-75	red	41.98	0.66	21.16	2.41	20.47	4.98	0.35	8.72	0.00	0.07	0.02	100.83
Seed-76	red	42.01	0.67	22.02	0.79	20.51	4.74	0.34	8.91	0.00	0.08	0.00	100.07
Seed-77	red	41.56	0.54	19.19	4.96	20.54	5.44	0.30	7.32	0.06	0.02	0.00	99.92
Seed-79	red	41.14	1.05	18.78	5.03	20.33	5.81	0.29	7.49	0.00	0.07	0.00	99.98
Seed-80	red	41.94	0.16	20.52	4.04	21.41	5.15	0.29	6.53	0.04	0.02	0.00	100.11
Seed-81	red	40.96	0.93	16.49	8.08	20.15	6.84	0.30	6.43	0.00	0.06	0.00	100.24
Seed-82	red	40.96	0.87	17.93	6.03	19.92	5.76	0.35	7.61	0.02	0.06	0.00	99.50
Seed-83	red	41.09	0.98	17.24	6.84	20.16	6.21	0.26	6.81	0.02	0.04	0.00	99.65
Seed-84	red	41.05	1.07	16.41	7.75	20.14	6.34	0.28	6.86	0.00	0.06	0.03	99.99
Seed-85	red	41.77	0.58	20.73	2.99	21.01	4.72	0.28	7.65	0.00	0.07	0.00	99.81
Seed-86	red	41.15	0.69	17.33	7.00	20.46	6.12	0.29	6.67	0.05	0.03	0.01	99.81
Seed-87	red	41.39	0.57	18.86	5.82	20.30	5.90	0.40	7.05	0.05	0.05	0.00	100.39
Seed-88	red	40.72	0.84	16.10	8.30	19.62	6.73	0.35	6.59	0.00	0.05	0.02	99.33
Seed-89	red	41.67	0.15	20.19	4.04	20.76	5.33	0.23	7.11	0.00	0.01	0.00	99.49
Seed-91	red	41.54	0.45	22.81	0.17	19.66	4.37	0.48	10.92	0.06	0.06	0.01	100.52
Seed-92	red	41.66	0.17	19.79	4.78	20.76	5.59	0.35	6.60	0.02	0.01	0.00	99.73
Seed-93	red	40.92	1.01	16.76	7.31	20.31	6.32	0.30	6.44	0.00	0.03	0.00	99.41
Seed-95	red	41.38	0.46	19.42	4.92	20.47	5.54	0.33	7.36	0.02	0.03	0.00	99.94
Seed-96	red	41.29	0.46	22.71	0.20	19.44	4.33	0.40	10.76	0.00	0.06	0.00	99.65
Seed-97	red	41.67	0.36	19.73	4.61	20.74	5.44	0.26	6.67	0.03	0.02	0.01	99.54
Seed-98	red	41.77	0.14	20.36	4.14	20.99	5.44	0.27	6.61	0.01	0.02	0.01	99.77
Seed-99	red	41.69	0.20	20.44	3.92	20.94	5.29	0.25	7.17	0.04	0.01	0.00	99.96
Seed-100	red	41.31	0.99	18.20	5.45	20.62	5.69	0.27	6.91	0.04	0.05	0.00	99.53
Seed-101	red	40.67	0.92	16.07	8.51	19.90	6.52	0.27	6.38	0.00	0.04	0.00	99.27
Seed-102	red	41.03	1.00	18.03	5.94	20.35	6.03	0.26	7.02	0.06	0.07	0.00	99.77
Seed-103	red	41.68	0.45	19.29	4.92	20.66	5.51	0.25	7.19	0.02	0.03	0.00	100.02
Seed-104	red	41.09	0.36	17.96	6.74	19.95	6.12	0.30	6.92	0.01	0.02	0.00	99.49
Seed-105	red	40.88	0.88	15.89	8.74	19.87	6.84	0.28	6.57	0.00	0.05	0.00	100.00
Seed-106	red	41.23	0.19	17.21	7.92	20.30	6.16	0.29	6.24	0.03	0.02	0.00	99.60
Seed-107	red	41.33	0.32	19.53	4.98	20.63	5.42	0.27	6.99	0.04	0.03	0.01	99.57
Seed-108	red	41.84	0.20	20.35	3.87	20.69	5.35	0.32	7.09	0.01	0.03	0.00	99.74
Seed-109	red	41.49	0.47	19.33	4.76	20.74	5.37	0.27	6.92	0.01	0.03	0.01	99.39
Seed-111	red	40.64	0.73	16.72	8.06	20.02	6.42	0.26	6.58	0.05	0.04	0.00	99.53
Seed-112	red	40.84	2.00	19.73	1.47	18.23	6.96	0.33	10.26	0.00	0.09	0.01	99.92
Seed-113	red	41.32	0.45	19.35	5.25	20.54	5.52	0.28	7.07	0.06	0.03	0.00	99.88
Seed-114	red	40.87	0.82	17.92	6.27	19.96	6.04	0.32	7.00	0.01	0.06	0.00	99.27
Seed-115	red	41.53	0.05	19.85	5.15	20.76	5.74	0.31	6.59	0.02	0.00	0.00	100.00
Seed-116	red	41.52	0.48	19.55	4.83	20.52	5.48	0.32	7.31	0.06	0.03	0.00	100.10
Seed-117	red	41.25	0.59	18.35	6.16	20.29	6.16	0.31	6.79	0.00	0.04	0.00	99.94
Seed-118	red	40.70	0.92	16.20	8.02	19.93	6.80	0.22	6.40	0.01	0.04	0.01	99.24
Seed-119	red	41.12	0.73	17.80	6.37	20.23	6.00	0.30	6.90	0.08	0.05	0.00	99.58
Seed-120	red	41.54	0.45	22.70	0.25	19.41	4.39	0.37	10.92	0.00	0.06	0.02	100.10
Seed-121	red	41.48	0.68	21.14	2.49	20.40	4.86	0.33	8.65	0.00	0.07	0.00	100.11
Seed-122	red	41.29	0.60	18.71	5.79	20.27	5.95	0.32	6.82	0.00	0.07	0.06	99.88

Seed. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
seed-123	red	41.11	1.04	18.28	5.65	20.87	5.84	0.28	6.56	0.05	0.05	0.00	99.73
seed-124	red	40.86	0.93	17.95	6.05	20.02	5.90	0.28	7.56	0.00	0.07	0.00	99.63
seed-125	red	41.82	0.64	20.80	3.03	21.02	4.68	0.33	7.75	0.07	0.08	0.00	100.22
seed-126	red	41.12	0.96	17.82	6.05	20.02	5.78	0.31	7.63	0.00	0.06	0.01	99.77
seed-127	red	41.44	0.49	19.41	5.11	20.45	5.49	0.26	7.49	0.01	0.03	0.00	100.17
seed-128	red	41.24	0.43	18.37	6.24	20.19	6.05	0.33	6.60	0.00	0.02	0.00	99.48
seed-129	red	41.46	0.45	19.41	4.72	20.39	5.59	0.24	7.19	0.00	0.03	0.00	99.48
seed-131	red	41.55	1.09	21.55	0.71	19.89	5.15	0.34	9.69	0.01	0.07	0.00	100.06
seed-132	red	41.61	0.71	21.26	2.00	20.37	4.73	0.33	8.90	0.04	0.08	0.00	100.03
seed-133	red	41.15	0.80	18.84	5.12	20.65	5.85	0.28	6.79	0.02	0.04	0.00	99.55
seed-134	red	41.44	0.46	19.56	4.89	20.58	5.48	0.24	7.36	0.01	0.04	0.00	100.06
seed-135	red	41.18	0.68	18.70	5.70	20.58	5.97	0.24	6.70	0.02	0.04	0.00	99.82
seed-136	red	41.68	0.76	19.36	4.46	20.80	5.63	0.25	6.66	0.06	0.05	0.01	99.70
seed-137	red	41.17	0.46	18.93	5.21	20.33	5.54	0.30	7.01	0.00	0.03	0.00	98.99
seed-139	red	41.14	0.31	18.02	6.84	20.04	6.11	0.35	6.81	0.00	0.03	0.00	99.65
seed-140	red	41.28	0.79	19.05	4.60	20.49	5.44	0.33	7.26	0.01	0.05	0.00	99.30
seed-141	red	41.28	0.46	19.11	5.27	20.34	5.47	0.30	7.04	0.04	0.03	0.04	99.39
seed-142	red	41.85	0.98	22.24	0.28	21.27	3.60	0.26	9.26	0.00	0.06	0.04	99.84
seed-143	red	41.23	0.90	18.35	5.66	20.30	5.96	0.29	7.02	0.00	0.06	0.01	99.80
seed-144	red	41.58	0.51	19.32	5.07	20.50	5.63	0.30	7.24	0.00	0.03	0.00	100.18
seed-145	red	41.17	0.56	18.34	6.06	20.42	5.99	0.21	6.78	0.00	0.04	0.01	99.58
seed-146	orange	41.34	0.52	22.62	0.23	19.43	4.40	0.45	11.02	0.00	0.05	0.00	100.06
seed-147	orange	41.59	0.48	22.90	0.22	19.50	4.38	0.47	10.87	0.01	0.05	0.00	100.46
seed-148	orange	41.58	0.49	22.73	0.21	19.29	4.39	0.45	11.05	0.00	0.05	0.00	100.24
seed-149	orange	41.84	0.48	22.67	0.25	19.17	4.34	0.43	10.77	0.01	0.06	0.01	100.03
seed-150	orange	41.58	0.88	21.92	0.69	20.34	4.64	0.28	9.71	0.00	0.05	0.03	100.12
seed-151	orange	41.32	0.49	22.77	0.18	19.52	4.34	0.44	11.02	0.00	0.06	0.00	100.15
seed-152	orange	41.39	1.28	21.74	0.49	20.61	4.27	0.31	9.72	0.00	0.08	0.00	99.89
seed-153	orange	41.66	1.30	21.66	0.49	20.84	4.27	0.35	9.34	0.01	0.09	0.02	100.03
seed-154	orange	41.83	0.48	22.83	0.23	19.45	4.45	0.42	10.98	0.00	0.05	0.00	100.71
seed-155	orange	41.70	0.54	22.47	0.60	19.87	4.45	0.36	10.00	0.00	0.06	0.00	100.05
seed-156	orange	41.28	1.42	20.80	1.18	19.36	5.86	0.27	9.89	0.01	0.08	0.03	100.18
seed-157	orange	41.39	1.90	20.82	0.58	20.47	4.97	0.31	9.64	0.01	0.09	0.03	100.21
seed-158	orange	41.23	0.48	22.63	0.22	19.32	4.32	0.44	11.01	0.00	0.06	0.00	99.71
seed-159	orange	41.39	0.47	22.63	0.19	19.38	4.41	0.37	11.06	0.00	0.05	0.00	99.94
seed-160	orange	41.65	0.49	22.69	0.17	19.43	4.35	0.44	10.97	0.00	0.06	0.00	100.25
seed-161	orange	41.65	0.47	22.77	0.19	19.45	4.41	0.44	11.19	0.00	0.05	0.00	100.62
seed-162	orange	41.66	1.48	21.41	0.52	20.93	4.36	0.31	9.60	0.00	0.08	0.00	100.36
seed-163	orange	41.63	0.48	22.94	0.14	19.56	4.43	0.41	10.77	0.00	0.06	0.00	100.42
seed-164	orange	41.55	0.67	22.24	0.80	20.41	4.82	0.32	8.96	0.00	0.07	0.00	99.85
seed-165	orange	41.93	0.72	22.33	0.83	21.37	3.52	0.28	9.02	0.01	0.05	0.04	100.10
seed-166	orange	42.09	0.97	20.90	1.74	21.10	4.93	0.27	8.09	0.02	0.07	0.00	100.18
seed-167	orange	41.67	0.49	22.64	0.24	19.44	4.36	0.46	11.02	0.00	0.05	0.01	100.38
seed-168	orange	41.34	1.72	20.99	0.58	20.61	4.71	0.37	9.72	0.00	0.09	0.00	100.13
seed-169	orange	41.54	0.50	22.79	0.19	19.37	4.35	0.42	11.00	0.00	0.06	0.00	100.22
seed-170	orange	41.37	0.54	22.56	0.25	19.20	4.40	0.43	11.08	0.03	0.06	0.03	99.96
seed-171	orange	41.42	0.53	22.74	0.24	19.51	4.40	0.46	11.02	0.00	0.06	0.03	100.42
seed-172	orange	41.08	1.75	20.35	1.19	19.12	6.27	0.40	10.00	0.00	0.08	0.00	100.25
seed-173	orange	41.17	1.37	20.91	0.96	19.44	5.86	0.32	9.85	0.00	0.07	0.00	99.95
seed-174	orange	41.14	1.80	19.99	1.12	18.81	6.45	0.37	10.19	0.00	0.08	0.00	99.94
seed-175	orange	41.24	1.36	20.87	1.09	19.49	5.65	0.38	9.85	0.00	0.06	0.01	100.00
seed-176	orange	41.80	0.66	22.15	0.77	20.48	4.74	0.40	9.09	0.06	0.06	0.00	100.21
seed-177	orange	41.61	0.46	22.71	0.16	19.37	4.43	0.44	10.97	0.00	0.05	0.02	100.23
seed-178	orange	41.21	1.43	20.82	1.16	19.43	5.73	0.35	9.72	0.00	0.07	0.00	99.92
seed-179	orange	41.91	0.47	22.62	0.18	19.53	4.40	0.39	10.94	0.01	0.05	0.00	100.51
seed-180	orange	41.38	2.14	20.46	0.64	20.34	4.70	0.32	9.59	0.00	0.10	0.00	99.66

Seed. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
seed-181	orange	41.46	1.74	20.33	1.22	19.14	6.13	0.39	10.10	0.04	0.08	0.00	100.64
seed-182	orange	41.46	0.42	22.61	0.17	19.36	4.31	0.45	10.70	0.02	0.05	0.00	99.56
seed-183	orange	41.91	0.73	20.62	2.70	21.38	4.79	0.26	7.51	0.00	0.06	0.00	99.96
seed-184	orange	41.55	1.30	20.85	1.50	20.54	4.50	0.31	9.38	0.00	0.08	0.00	100.01
seed-185	orange	41.39	0.51	22.40	0.25	19.20	4.41	0.39	10.91	0.02	0.06	0.00	99.52
seed-186	orange	41.61	1.34	21.80	0.40	21.18	3.97	0.32	9.05	0.02	0.08	0.00	99.76
seed-187	orange	41.58	0.47	22.85	0.19	19.45	4.30	0.38	10.93	0.00	0.05	0.00	100.20
seed-188	orange	41.22	1.79	21.09	0.58	20.63	4.65	0.29	9.75	0.00	0.08	0.00	100.09
seed-189	orange	41.27	1.55	21.04	0.41	20.44	4.51	0.33	9.76	0.00	0.08	0.00	99.39
seed-190	orange	41.60	0.48	22.72	0.18	19.23	4.34	0.42	10.95	0.00	0.06	0.00	99.96
seed-191	orange	41.49	1.61	21.30	0.50	20.59	4.70	0.28	9.35	0.02	0.09	0.06	100.00
seed-192	orange	41.71	0.45	22.77	0.22	19.63	4.38	0.46	10.93	0.05	0.05	0.00	100.64
seed-193	orange	41.42	1.02	21.92	0.65	20.23	4.84	0.34	9.85	0.04	0.05	0.00	100.35
seed-194	orange	41.03	1.42	20.63	1.08	19.20	6.13	0.36	9.77	0.00	0.10	0.00	99.72
seed-195	orange	41.83	0.48	22.93	0.19	19.55	4.40	0.38	11.08	0.00	0.06	0.02	100.92
seed-196	orange	41.16	1.42	20.72	0.96	19.31	5.86	0.36	9.82	0.07	0.07	0.00	99.74
seed-197	orange	40.96	1.52	20.44	1.20	18.88	6.23	0.38	9.91	0.05	0.07	0.00	99.65
seed-198	orange	41.62	0.51	22.68	0.19	19.39	4.36	0.41	11.15	0.02	0.05	0.00	100.37
seed-199	orange	41.34	1.99	20.76	0.54	20.51	4.73	0.34	9.52	0.00	0.10	0.04	99.86
seed-200	orange	41.65	0.68	20.78	2.43	21.25	4.74	0.28	7.84	0.05	0.04	0.00	99.75
seed-201	orange	40.80	1.43	20.57	1.12	19.19	5.88	0.32	9.87	0.00	0.07	0.02	99.27
seed-202	orange	41.49	0.52	22.49	0.22	19.37	4.45	0.37	11.11	0.00	0.07	0.01	100.09
seed-203	orange	41.58	0.48	22.80	0.20	19.43	4.37	0.42	10.72	0.00	0.06	0.03	100.07
seed-204	orange	41.55	1.01	21.56	0.78	20.15	4.99	0.32	9.59	0.01	0.05	0.00	100.01
seed-205	orange	37.85	0.01	21.64	0.01	6.41	2.40	0.54	32.00	0.00	0.00	0.01	100.86
seed-206	orange	41.55	1.45	21.40	0.48	20.57	4.33	0.27	9.82	0.02	0.08	0.00	99.97
seed-207	orange	41.82	0.51	22.64	0.23	19.47	4.34	0.41	10.80	0.00	0.06	0.00	100.29
seed-208	orange	40.96	1.69	20.35	0.99	19.00	6.26	0.39	10.11	0.01	0.09	0.03	99.88
seed-209	orange	41.31	1.52	20.35	1.29	19.09	6.13	0.33	9.97	0.00	0.08	0.02	100.09
seed-210	orange	41.65	0.46	22.63	0.23	19.32	4.31	0.38	10.97	0.02	0.05	0.00	100.01
seed-211	orange	41.40	1.62	21.21	0.54	21.08	3.82	0.31	9.37	0.01	0.10	0.05	99.51
seed-212	orange	41.76	0.47	22.61	0.17	19.49	4.37	0.39	11.08	0.00	0.06	0.01	100.39
seed-213	orange	41.80	0.76	22.19	0.63	20.67	4.22	0.37	9.61	0.01	0.05	0.00	100.30
seed-214	orange	41.27	2.18	20.68	0.54	20.55	4.69	0.35	9.70	0.01	0.10	0.01	100.08
seed-215	orange	41.46	0.47	22.82	0.18	19.55	4.34	0.40	10.88	0.00	0.05	0.00	100.15
seed-216	orange	41.04	1.53	20.58	1.31	19.02	6.30	0.35	9.96	0.00	0.08	0.02	100.19
seed-217	orange	41.63	0.90	21.01	1.76	21.10	4.89	0.23	8.15	0.01	0.06	0.00	99.73
seed-218	orange	41.49	0.71	21.55	0.69	18.84	4.74	0.39	11.70	0.00	0.07	0.00	100.19

Seed. Chromite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
Seed-1	0.03	0.11	0.03	13.49	57.24	0.32	12.23	0.00	0.23	16.21	0.03	0.13	100.06	0.44	15.81	100.10
Seed-2	0.02	0.05	0.00	14.67	54.40	0.08	12.09	0.00	0.24	18.29	0.09	0.15	100.10	2.86	15.71	100.38
Seed-3	0.21	0.94	0.00	9.11	57.86	0.21	12.89	0.02	0.25	18.75	0.11	0.00	100.34	4.13	15.03	100.75
Seed-4	0.02	0.26	0.00	9.64	58.14	0.09	10.88	0.01	0.36	20.85	0.07	0.10	100.40	4.25	17.02	100.83
Seed-5	0.03	2.02	0.03	2.77	55.26	0.39	8.69	0.00	0.46	29.60	0.13	0.11	99.49	9.54	21.02	100.45
Seed-6	0.00	0.09	0.00	13.85	57.60	0.27	12.46	0.00	0.26	16.14	0.11	0.19	100.98	0.73	15.48	101.06
Seed-7	0.03	0.45	0.00	7.84	58.14	0.23	10.98	0.01	0.37	22.00	0.09	0.11	100.25	5.63	16.93	100.81
Seed-8	0.16	2.05	0.02	6.92	56.52	0.33	12.28	0.00	0.21	21.23	0.20	0.07	99.98	5.18	16.58	100.50
Seed-9	0.03	0.99	0.03	9.45	56.15	0.34	11.42	0.00	0.28	21.16	0.19	0.11	100.14	4.46	17.15	100.58
Seed-10	0.02	0.36	0.00	13.41	57.33	0.29	12.76	0.00	0.32	15.96	0.09	0.13	100.66	0.87	15.18	100.75
Seed-11	0.03	0.04	0.00	19.27	52.03	0.17	13.88	0.00	0.26	14.50	0.07	0.05	100.30	0.60	13.96	100.36
Seed-14	0.20	1.14	0.00	12.88	46.77	0.35	12.45	0.00	0.27	25.32	0.16	0.00	99.55	9.82	16.49	100.53
Seed-15	0.01	0.65	0.00	14.93	55.78	0.15	13.41	0.00	0.27	15.52	0.08	0.05	100.86	0.98	14.64	100.96
Seed-16	0.03	0.17	0.02	16.04	54.75	0.27	13.01	0.01	0.30	15.61	0.08	0.07	100.35	0.67	15.00	100.42
Seed-18	0.01	1.32	0.00	7.74	53.65	0.17	9.25	0.01	0.40	26.93	0.11	0.12	99.71	7.69	20.01	100.48
Seed-19	0.01	0.36	0.00	16.82	51.45	0.20	12.55	0.00	0.27	18.90	0.13	0.20	100.89	3.30	15.93	101.22
Seed-20	0.00	0.14	0.00	10.78	55.19	0.24	10.23	0.00	0.39	22.56	0.02	0.23	99.79	5.05	18.02	100.29
Seed-21	0.01	0.42	0.10	6.10	56.70	0.37	9.56	0.00	0.37	25.58	0.08	0.21	99.49	7.53	18.80	100.24
Seed-22	0.04	0.20	0.00	7.88	58.74	0.19	10.73	0.00	0.33	22.21	0.13	0.22	100.69	5.70	17.08	101.26
Seed-23	0.02	2.36	0.05	0.86	57.41	0.30	7.69	0.02	0.49	30.23	0.15	0.13	99.70	8.72	22.38	100.58
Seed-24	0.00	2.09	0.01	0.89	58.72	0.34	7.98	0.01	0.53	29.37	0.17	0.00	100.10	8.29	21.91	100.93
Seed-25	0.01	0.25	0.00	17.42	52.97	0.18	13.48	0.00	0.28	15.15	0.07	0.15	99.97	1.01	14.24	100.07
Seed-26	0.08	0.55	0.00	11.48	47.34	0.19	0.56	0.01	0.89	34.49	0.19	4.67	100.46	6.31	28.81	101.09
Seed-27	0.02	0.50	0.00	15.33	43.57	0.26	10.62	0.00	0.27	28.60	0.21	0.18	99.56	11.18	18.55	100.68
Seed-28	0.01	1.39	0.02	2.18	60.17	0.33	8.73	0.01	0.42	26.53	0.15	0.15	100.10	6.92	20.30	100.80
Seed-29	0.01	1.73	0.00	1.17	61.55	0.31	8.98	0.00	0.42	25.58	0.11	0.18	100.03	6.19	20.01	100.65
Seed-32	0.00	0.15	0.00	14.12	56.75	0.39	12.68	0.03	0.31	16.01	0.08	0.18	100.71	0.80	15.29	100.79
Seed-37	0.02	0.01	0.06	9.58	60.32	0.31	11.60	0.00	0.32	18.39	0.20	0.19	101.01	2.54	16.11	101.27
Seed-39	0.18	1.04	0.03	9.31	57.37	0.24	12.87	0.00	0.24	18.71	0.16	0.01	100.16	3.96	15.14	100.56
Seed-40	0.00	0.09	0.00	12.24	54.14	0.27	10.70	0.00	0.32	22.59	0.09	0.13	100.56	5.24	17.87	101.09
Seed-41	0.00	2.37	0.00	0.62	57.79	0.50	7.86	0.00	0.50	29.55	0.13	0.30	99.63	8.18	22.19	100.45
Seed-43	0.01	2.67	0.01	0.99	57.48	0.30	7.99	0.00	0.48	29.37	0.12	0.12	99.55	7.98	22.20	100.35
Seed-46	0.02	0.05	0.00	13.60	56.94	0.29	12.45	0.00	0.25	16.20	0.06	0.14	100.00	1.03	15.28	100.10
Seed-47	0.02	0.19	0.01	17.52	52.91	0.17	13.48	0.02	0.28	15.47	0.06	0.10	100.19	1.27	14.32	100.32
Seed-48	0.04	2.24	0.00	0.93	57.40	0.28	7.75	0.01	0.50	30.07	0.21	0.21	99.65	8.97	22.00	100.55
Seed-49	0.02	0.02	0.02	16.05	55.26	0.25	13.49	0.01	0.23	14.42	0.10	0.20	100.06	0.53	13.94	100.12
Seed-50	0.02	2.13	0.01	0.89	58.38	0.30	8.39	0.00	0.48	28.19	0.16	0.13	99.09	8.10	20.90	99.90
Seed-51	0.02	0.21	0.00	15.34	55.42	0.23	12.91	0.00	0.19	15.35	0.13	0.16	99.97	0.57	14.84	100.02
Seed-53	0.03	0.04	0.00	13.62	57.18	0.21	12.80	0.00	0.32	15.46	0.09	0.18	99.92	1.10	14.47	100.03
Seed-56	0.16	2.23	0.00	8.12	55.37	0.22	12.94	0.01	0.28	20.07	0.24	0.11	99.75	5.07	15.51	100.26
Seed-57	0.02	1.62	0.01	3.95	55.35	0.34	8.06	0.00	0.41	29.47	0.15	0.14	99.51	8.63	21.70	100.37
Seed-59	0.01	2.17	0.00	0.91	57.90	0.40	7.75	0.00	0.43	29.65	0.17	0.07	99.45	8.22	22.25	100.27
Seed-61	0.01	0.00	0.05	8.39	56.84	0.22	9.48	0.00	0.46	24.21	0.04	0.11	99.82	6.09	18.73	100.43
Seed-66	0.00	0.26	0.00	12.39	57.58	0.16	11.99	0.00	0.31	17.87	0.09	0.15	100.78	2.16	15.92	101.00
Seed-68	0.20	1.41	0.02	13.53	45.64	0.36	12.71	0.00	0.28	24.87	0.20	0.10	99.32	9.57	16.26	100.28
Seed-72	0.03	2.59	0.01	5.52	55.02	0.30	10.29	0.00	0.29	26.04	0.18	0.02	100.28	6.93	19.80	100.98
Seed-75	0.01	2.63	0.00	1.12	56.38	0.12	8.07	0.00	0.45	30.52	0.15	0.05	99.51	9.66	21.83	100.48

Seed, Ilmenite

Sample	SiO2	TiO2	Nb2O5	t2O3	r2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total	ilmenite	geikielite	hematite	Total
Seed-1	0.02	52.72	0.31	0.18	0.61	0.00	10.43	0.00	0.36	34.59	0.05	0.08	99.36	6.56	28.69	100.01	57.12	37.01	5.87	100.00
Seed-2	0.02	53.34	0.30	0.21	0.98	0.20	11.42	0.02	0.30	32.16	0.11	0.03	99.10	4.82	27.82	99.58	55.27	40.42	4.31	100.00
Seed-3	0.06	54.30	0.20	0.33	1.66	0.23	12.55	0.02	0.35	30.81	0.11	0.11	100.73	4.73	26.55	101.21	52.01	43.82	4.17	100.00
Seed-4	0.01	53.71	0.27	0.29	1.40	0.21	11.98	0.02	0.29	31.69	0.11	0.00	99.98	5.03	27.16	100.49	53.49	42.05	4.46	100.00
Seed-5	0.03	53.44	0.18	0.28	1.19	0.05	11.57	0.00	0.31	32.23	0.08	0.02	99.36	5.42	27.35	99.90	54.26	40.90	4.84	100.00
Seed-6	0.00	52.55	0.33	0.18	0.63	0.31	10.65	0.01	0.33	34.86	0.06	0.07	99.98	6.89	28.66	100.67	56.50	37.40	6.11	100.00
Seed-7	0.03	53.15	0.14	0.40	1.71	0.12	11.77	0.03	0.26	31.65	0.07	0.05	99.36	5.39	26.80	99.90	53.39	41.78	4.83	100.00
Seed-8	0.03	53.40	0.20	0.30	1.17	0.00	11.90	0.01	0.29	31.72	0.08	0.04	99.15	5.66	26.63	99.72	52.84	42.10	5.06	100.00
Seed-9	0.00	53.85	0.13	0.34	1.48	0.10	12.13	0.01	0.26	31.17	0.16	0.00	99.64	5.01	26.66	100.14	52.75	42.78	4.46	100.00
Seed-10	0.02	53.43	0.28	0.26	1.19	0.13	12.00	0.03	0.31	31.77	0.09	0.02	99.53	5.59	26.73	100.09	52.79	42.24	4.97	100.00
Seed-11	0.00	53.28	0.23	0.34	1.26	0.17	11.95	0.03	0.25	31.74	0.10	0.00	99.34	5.56	26.74	99.89	52.92	42.13	4.95	100.00
Seed-12	0.01	53.42	0.16	0.36	1.66	0.22	11.86	0.03	0.22	31.67	0.05	0.13	99.79	5.18	27.02	100.31	53.52	41.86	4.62	100.00
Seed-13	0.02	53.59	0.27	0.31	1.30	0.00	11.30	0.03	0.31	32.71	0.13	0.00	99.96	5.37	27.88	100.50	55.28	39.93	4.79	100.00
Seed-14	0.03	54.10	0.28	0.23	0.97	0.00	11.46	0.03	0.28	32.98	0.00	0.00	100.35	5.25	28.25	100.87	55.37	40.00	4.63	100.00
Seed-15	0.03	53.35	0.25	0.26	1.66	0.20	12.00	0.01	0.28	31.24	0.10	0.00	99.37	4.91	26.82	99.87	53.20	42.42	4.38	100.00
Seed-16	0.02	53.42	0.17	0.31	0.87	0.26	11.60	0.04	0.29	32.24	0.06	0.11	99.40	5.31	27.47	99.94	54.37	40.91	4.72	100.00
Seed-17	0.00	54.22	0.23	0.21	1.03	0.00	11.54	0.03	0.33	32.63	0.07	0.00	100.30	5.15	28.00	100.82	55.03	40.42	4.55	100.00
Seed-18	0.00	53.23	0.21	0.27	1.60	0.06	11.51	0.03	0.31	32.40	0.14	0.00	99.78	5.79	27.20	100.36	54.06	40.77	5.17	100.00
Seed-19	0.01	53.59	0.29	0.35	1.22	0.08	11.95	0.04	0.27	32.00	0.06	0.03	99.89	5.62	26.94	100.45	53.07	41.95	4.98	100.00
Seed-20	0.02	53.37	0.21	0.34	1.28	0.14	12.04	0.01	0.26	31.27	0.07	0.15	99.16	5.27	26.53	99.68	52.68	42.61	4.71	100.00
Seed-21	0.00	53.77	0.19	0.33	1.28	0.23	12.52	0.02	0.32	30.90	0.10	0.00	99.66	5.26	26.16	100.19	51.46	43.89	4.66	100.00
Seed-22	0.01	52.89	0.13	0.31	1.12	0.13	11.30	0.01	0.24	33.00	0.09	0.09	99.32	6.26	27.36	99.94	54.38	40.02	5.60	100.00
Seed-23	0.00	53.21	0.31	0.21	1.01	0.16	11.62	0.02	0.32	32.56	0.03	0.04	99.49	5.81	27.34	100.07	53.98	40.87	5.16	100.00
Seed-24	0.01	53.80	0.11	0.32	1.49	0.12	12.10	0.00	0.29	31.73	0.09	0.00	100.07	5.54	26.75	100.62	52.65	42.44	4.91	100.00
Seed-25	0.05	53.23	0.32	0.19	0.83	0.12	10.85	0.02	0.33	34.27	0.06	0.02	100.26	6.21	28.68	100.89	56.44	38.06	5.50	100.00
Seed-26	0.03	53.22	0.28	0.31	1.15	0.05	11.45	0.02	0.31	32.89	0.11	0.06	99.89	6.11	27.38	100.50	54.19	40.37	5.44	100.00
Seed-27	0.02	53.36	0.29	0.30	1.01	0.23	11.65	0.01	0.26	32.32	0.15	0.06	99.66	5.39	27.47	100.20	54.24	40.98	4.79	100.00
Seed-28	0.03	53.62	0.26	0.30	1.36	0.23	12.40	0.03	0.30	31.04	0.10	0.07	99.73	5.28	26.30	100.26	51.80	43.52	4.68	100.00
Seed-29	0.04	54.05	0.18	0.28	1.14	0.00	11.82	0.02	0.33	31.91	0.06	0.00	99.82	5.06	27.36	100.32	53.96	41.55	4.49	100.00
Seed-30	0.01	53.75	0.20	0.28	1.45	0.09	12.18	0.00	0.19	31.27	0.13	0.00	99.57	5.10	26.69	100.08	52.65	42.83	4.53	100.00
Seed-31	0.00	52.54	0.33	0.29	0.73	0.16	10.65	0.02	0.26	34.50	0.10	0.09	99.66	6.76	28.41	100.34	56.33	37.64	6.03	100.00
Seed-32	0.02	53.19	0.28	0.29	1.37	0.32	11.92	0.02	0.25	31.75	0.09	0.00	99.51	5.22	27.05	100.03	53.41	41.95	4.64	100.00
Seed-33	0.01	53.58	0.22	0.36	1.53	0.20	12.02	0.02	0.31	30.82	0.11	0.00	99.18	4.39	26.87	99.62	53.45	42.62	3.92	100.00
Seed-34	0.00	53.33	0.26	0.21	0.85	0.19	11.62	0.03	0.30	32.40	0.12	0.05	99.36	5.62	27.34	99.93	54.06	40.94	5.00	100.00
Seed-35	0.02	53.75	0.35	0.29	1.08	0.31	11.73	0.02	0.29	32.23	0.00	0.10	100.15	4.80	27.91	100.63	54.75	41.02	4.23	100.00
Seed-36	0.02	53.83	0.26	0.26	1.12	0.13	12.28	0.02	0.29	31.18	0.08	0.04	99.51	5.08	26.61	100.02	52.40	43.09	4.50	100.00
Seed-37	0.02	55.30	0.11	0.40	0.64	0.12	11.75	0.02	0.27	31.53	0.08	0.00	100.25	3.10	28.74	100.56	56.27	41.00	2.73	100.00
Seed-38	0.01	53.54	0.16	0.29	1.21	0.17	12.17	0.00	0.33	31.05	0.06	0.03	99.02	5.06	26.49	99.53	52.50	42.98	4.51	100.00
Seed-39	0.00	53.33	0.30	0.19	0.94	0.30	11.61	0.01	0.28	32.46	0.11	0.00	99.55	5.32	27.68	100.08	54.53	40.76	4.71	100.00
Seed-40	0.01	52.79	0.30	0.25	0.92	0.03	11.15	0.00	0.27	33.80	0.07	0.00	99.59	6.83	27.65	100.27	54.67	39.26	6.07	100.00
Seed-41	0.00	53.92	0.26	0.37	1.57	0.26	12.53	0.01	0.24	30.63	0.03	0.01	99.84	4.53	26.55	100.29	52.14	43.86	4.00	100.00
Seed-42	0.02	53.13	0.20	0.37	1.54	0.00	12.19	0.00	0.24	31.49	0.10	0.05	99.35	6.20	25.91	99.97	51.39	43.08	5.53	100.00
Seed-43	0.02	53.67	0.26	0.22	1.22	0.21	12.03	0.03	0.29	31.67	0.01	0.00	99.62	5.07	27.11	100.13	53.34	42.18	4.48	100.00
Seed-44	0.00	54.11	0.17	0.21	0.74	0.00	12.62	0.02	0.37	31.27	0.10	0.03	99.63	6.03	25.84	100.24	50.62	44.07	5.32	100.00
Seed-45	0.00	54.38	0.18	0.47	1.57	0.28	14.50	0.12	0.36	27.51	0.09	0.06	99.52	4.97	23.04	100.02	45.07	50.56	4.38	100.00
Seed-46	0.00	51.97	0.20	0.45	1.74	0.27	10.90	0.01	0.27	33.68	0.08	0.00	99.56	6.76	27.59	100.24	55.12	38.81	6.08	100.00
Seed-47	0.01	53.65	0.15	0.43	1.61	0.20	12.25	0.01	0.27	30.75	0.08	0.10	99.52	4.80	26.44	100.00	52.42	43.30	4.28	100.00
Seed-48	0.03	53.75	0.17	0.38	1.52	0.15	12.26	0.03	0.27	31.23	0.12	0.00	99.90	5.26	26.50	100.42	52.25	43.08	4.67	100.00
Seed-49	0.02	53.36	0.17	0.32	1.36	0.10	11.97	0.01	0.33	31.73	0.15	0.04	99.56	5.82	26.49	100.14	52.51	42.29	5.19	100.00
Seed-50	0.01	53.38	0.22	0.32	1.60	0.10	11.71	0.03	0.27	31.94	0.09	0.07	99.74	5.38	27.09	100.27	53.78	41.41	4.81	100.00
Seed-51	0.00	53.21	0.44	0.25	0.61	0.00	10.44	0.03	0.29	35.18	0.05	0.00	100.49	6.49	29.34	101.14	57.69	36.57	5.74	100.00
Seed-53	0.02	53.44	0.28	0.19	0.92	0.06	11.70	0.04	0.27	32.28	0.07	0.14	99.41	5.73	27.12	99.98	53.65	41.25	5.10	100.00
Seed-54	0.01	53.24	0.15	0.40	2.11	0.19	12.67	0.01	0.29	30.43	0.16	0.10	99.77	5.76	25.25	100.35	50.09	44.77	5.14	100.00
Seed-55	0.03	52.70	0.18	0.44	1.78	0.14	10.83	0.01	0.23	33.55	0.10	0.00	100.00	5.95	28.20	100.60	56.20	38.46	5.33	100.00
Seed-56	0.00	53.28	0.21	0.30	1.67	0.00	11.76	0.00	0.28	32.16	0.12	0.04	99.82	6.00	26.76	100.42	53.09	41.56	5.35	100.00
Seed-57	0.01	53.11	0.15	0.47	2.12	0.16	11.69	0.01	0.22	31.82	0.15	0.01	99.92	5.39	26.97	100.46	53.70	41.47	4.83	100.00
Seed-58	0.01	53.56	0.18	0.31	1.64	0.00	11.60	0.00	0.23	31.82	0.16	0.02	99.53	5.03	27.29	100.04	54.34	41.15	4.51	100.00
Seed-59	0.01	53.17	0.28	0.27	1.26	0.22	11.95	0.00	0.29	31.67	0.14	0.05	99.31	5.51	26.71	99.86	52.91	42.18	4.91	100.00
Seed-60	0.02	53.01	0.19	0.34	2.01	0.19	12.40	0.04	0.31	30.53	0.07	0.09	99.21	5.47	25.61	99.75	51.04	44.05	4.91	100.00
Seed-61	0.01	53.27	0.29	0.22	1.06	0.03	11.56	0.02	0.27	32.58	0.10	0.09	99.51	5.96	27.21	100.11	53.89	40.80	5.31	100.00
Seed-62	0.02	54.31	0.18	0.43	1.51	0.13	12.76	0.02	0.32	30.05	0.13	0.13	99.99	4.56	25.95	100.45	51.15	44.81	4.04	100.00
Seed-63	0.04	53.06	0.25	0.28	1.00	0.14	11.43	0.01	0.27	32.54	0.15	0.09	99.27	5.72	27.39	99.85	54.42	40.46	5.12	100.00
Seed-64	0.02	53.34	0.26	0.30	1.10	0.12	11.77	0.03	0.30	31.75	0.12	0.00	99.12	5.25	27.03	99.64	53.67	41.64	4.69	100.00
Seed-65	0.00	54.87	0.25	0.35	1.29	0.06	15.02	0.08	0.44	27.05	0.03	0.01	99.46	5.21	22.36	99.98	43.45	52.00	4.55	100.00
Seed-66	0.02	53.01	0.31	0.28	0.81	0.15	10.96	0.02	0.28	34.12	0.14	0.09	100.19	6.55	28.23	100.85	55.68	38.51	5.81	100.00
Seed-67	0.00	52.79	0.22	0.43	2.27	0.20	11.64	0.02	0.29	32.07	0.14	0.00	100.07	5.83	26.83	100.66	53.45	41.32	5.23	100.00
Seed-68	0.02	53.01	0.22	0.43	2.36	0.31	11.65	0.02	0.27	31.58	0.14	0.00	100.01	4.83	27.23	100.49	54.28	41.39	4.33	100.00
Seed-69	0.02	52.35	0.33	0.17	0.62	0.32	11.08	0.03	0.35	34.13	0.02	0.01	99.43	7.03	27.80	100.13	54.82	38.94	6.24	100.00

Seed. Ilmenite, continued

Sample	SiO2	TiO2	Nb2O5	I2O3	r2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total	ilmenite	geikielite	hematite	Total
Seed-70	0.02	52.97	0.23	0.49	2.19	0.22	11.47	0.01	0.26	32.40	0.10	0.03	100.37	5.55	27.41	100.93	54.45	40.59	4.96	100.00
Seed-71	0.03	52.61	0.26	0.19	0.93	0.05	11.11	0.00	0.25	33.98	0.07	0.02	99.52	7.12	27.57	100.23	54.51	39.15	6.34	100.00
Seed-72	0.06	53.35	0.27	0.30	0.93	0.21	11.61	0.02	0.26	32.40	0.03	0.18	99.62	5.44	27.51	100.17	54.33	40.84	4.83	100.00
Seed-73	0.03	53.46	0.31	0.22	0.78	0.27	11.43	0.01	0.31	33.02	0.14	0.04	100.00	5.58	28.00	100.56	55.03	40.04	4.93	100.00
Seed-74	0.01	53.05	0.30	0.24	0.77	0.11	11.08	0.00	0.33	33.72	0.07	0.03	99.70	6.28	28.07	100.33	55.43	38.98	5.58	100.00
Seed-75	0.05	54.64	0.11	0.77	2.41	0.00	13.41	0.05	0.30	28.05	0.14	0.09	100.03	3.59	24.82	100.39	49.31	47.48	3.21	100.00
Seed-76	0.02	55.21	0.10	0.59	0.22	0.20	13.40	0.04	0.24	29.58	0.12	0.09	99.79	4.27	25.73	100.21	49.94	46.33	3.73	100.00
Seed-77	0.02	53.43	0.11	0.41	0.50	0.16	11.53	0.04	0.24	32.87	0.12	0.00	99.44	6.01	27.47	100.04	54.15	40.52	5.33	100.00
Seed-78	0.01	53.57	0.28	0.24	1.14	0.04	11.97	0.01	0.25	31.84	0.13	0.00	99.49	5.58	26.82	100.05	52.94	42.11	4.96	100.00
Seed-79	0.02	52.96	0.03	0.45	1.29	0.15	11.46	0.00	0.30	32.76	0.17	0.02	99.59	6.39	27.01	100.23	53.70	40.59	5.71	100.00
Seed-80	0.04	54.54	0.15	0.47	1.41	0.24	13.43	0.03	0.20	29.08	0.13	0.06	99.79	4.23	25.27	100.22	49.45	46.82	3.72	100.00
Seed-81	0.02	54.98	0.07	0.59	3.22	0.00	13.74	0.01	0.23	27.56	0.27	0.05	100.74	3.40	24.50	101.08	48.51	48.46	3.03	100.00
Seed-82	0.02	53.44	0.13	0.26	1.02	0.11	11.44	0.04	0.24	32.55	0.11	0.04	99.39	5.54	27.56	99.95	54.64	40.42	4.94	100.00
Seed-83	0.06	53.98	0.06	0.53	0.68	0.08	11.59	0.03	0.25	32.42	0.15	0.09	99.93	5.30	27.65	100.46	54.55	40.74	4.71	100.00
Seed-84	0.01	55.20	0.06	0.55	0.44	0.25	13.34	0.06	0.26	30.20	0.15	0.12	100.63	4.95	25.74	101.13	49.75	45.94	4.31	100.00
Seed-85	0.05	55.07	0.03	0.70	1.67	0.00	12.97	0.17	0.26	28.61	0.12	0.00	99.66	2.99	25.93	99.96	51.47	45.87	2.67	100.00
Seed-86	0.02	54.23	0.03	0.79	2.38	0.22	13.21	0.02	0.23	29.09	0.25	0.00	100.46	4.40	25.12	100.90	49.61	46.48	3.91	100.00
Seed-87	0.02	52.45	0.11	0.50	1.79	0.07	11.31	0.03	0.22	32.75	0.12	0.07	99.45	6.58	26.84	100.11	53.73	40.34	5.93	100.00

Note: all analyses on mineral cores.

Seed. Orthopyroxene.

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Seed-1	57.05	0.01	2.63	0.67	34.73	0.59	0.13	4.93	0.11	0.02	0.00	100.87
Seed-2	57.81	0.11	0.97	0.45	34.59	1.06	0.15	5.39	0.12	0.14	0.00	100.79
Seed-3	57.07	0.00	2.49	0.80	34.67	0.87	0.13	4.61	0.04	0.06	0.00	100.75
Seed-5	56.24	0.01	3.17	0.99	33.63	1.49	0.13	4.72	0.09	0.06	0.00	100.53
Seed-6	56.39	0.01	3.16	0.85	34.43	0.48	0.10	4.89	0.07	0.02	0.02	100.43
Seed-7	56.63	0.00	2.51	0.70	33.97	1.64	0.10	4.69	0.13	0.06	0.01	100.42
Seed-8	57.72	0.12	1.00	0.34	34.50	1.01	0.16	5.72	0.06	0.14	0.01	100.78
Seed-9	56.74	0.00	2.40	0.72	34.93	0.44	0.15	4.87	0.10	0.01	0.00	100.36
Seed-10	57.79	0.13	1.06	0.34	34.64	1.02	0.08	5.64	0.08	0.15	0.00	100.92
Seed-11	57.29	0.15	0.66	0.17	33.04	0.63	0.15	8.16	0.08	0.15	0.00	100.49
Seed-12	57.79	0.14	1.04	0.37	34.37	1.03	0.13	5.54	0.12	0.19	0.00	100.73
Seed-13	57.41	0.16	0.94	0.31	34.46	0.99	0.11	5.76	0.14	0.14	0.00	100.41
Seed-14	57.58	0.14	1.02	0.33	34.32	0.98	0.10	5.58	0.12	0.14	0.00	100.30
Seed-15	57.70	0.11	0.97	0.42	34.71	0.98	0.11	5.16	0.15	0.15	0.00	100.46
Seed-16	57.57	0.14	0.90	0.31	34.53	1.05	0.11	5.58	0.12	0.13	0.00	100.44
Seed-17	57.40	0.15	0.95	0.37	34.08	1.01	0.13	5.72	0.10	0.21	0.00	100.11
Seed-18	56.74	0.01	2.96	0.81	34.61	0.77	0.11	4.75	0.07	0.01	0.03	100.88
Seed-19	57.73	0.14	0.92	0.35	33.94	1.04	0.16	5.69	0.11	0.24	0.04	100.35
Seed-20	57.73	0.18	0.91	0.23	34.56	0.90	0.13	5.75	0.09	0.13	0.01	100.61
Seed-21	57.04	0.15	0.68	0.21	33.31	0.60	0.18	7.94	0.05	0.15	0.00	100.30
Seed-22	57.82	0.15	0.92	0.30	34.52	0.99	0.11	5.58	0.12	0.13	0.03	100.67
Seed-23	58.66	0.01	0.69	0.29	36.57	0.14	0.09	4.40	0.07	0.10	0.00	101.03
Seed-24	56.90	0.15	0.58	0.21	32.89	0.56	0.18	7.92	0.04	0.18	0.02	99.64
Seed-25	57.24	0.17	0.64	0.16	32.89	0.54	0.13	7.92	0.09	0.16	0.00	99.95
Seed-26	57.74	0.04	0.94	0.39	34.79	0.96	0.12	5.33	0.15	0.14	0.00	100.58
Seed-27	57.39	0.13	0.96	0.39	34.23	1.00	0.12	5.68	0.10	0.16	0.01	100.18
Seed-28	57.64	0.17	0.92	0.21	34.44	0.88	0.17	5.81	0.05	0.12	0.00	100.42
Seed-29	57.63	0.16	0.89	0.25	34.27	0.86	0.11	5.77	0.07	0.15	0.00	100.15
Seed-30	57.20	0.03	2.16	0.64	34.48	1.49	0.14	4.84	0.09	0.02	0.00	101.10
Seed-31	57.27	0.13	0.86	0.32	34.52	0.97	0.11	5.45	0.17	0.16	0.00	99.96
Seed-32	41.28	0.04	0.00	0.15	50.04	0.06	0.12	9.04	0.41	0.02	0.00	101.16
Seed-33	57.10	0.25	1.19	0.58	33.94	1.34	0.15	5.21	0.13	0.21	0.00	100.10
Seed-34	57.68	0.17	0.90	0.19	34.51	0.90	0.14	5.83	0.08	0.11	0.00	100.53
Seed-35	56.34	0.00	3.11	0.90	33.50	2.26	0.10	4.55	0.09	0.06	0.00	100.91
Seed-36	57.59	0.16	0.55	0.22	33.27	0.61	0.17	8.08	0.04	0.17	0.00	100.85
Seed-38	57.72	0.20	0.88	0.64	35.07	0.95	0.11	4.88	0.10	0.16	0.00	100.72
Seed-39	57.27	0.16	0.65	0.21	33.33	0.60	0.14	7.91	0.02	0.17	0.00	100.46
Seed-40	57.76	0.16	0.86	0.66	34.63	1.06	0.13	4.92	0.10	0.18	0.00	100.45
Seed-41	57.70	0.13	0.97	0.42	34.62	1.05	0.14	5.20	0.08	0.15	0.00	100.47
Seed-42	56.22	0.01	3.24	0.89	34.45	0.55	0.12	4.99	0.13	0.02	0.00	100.61
Seed-43	57.07	0.15	0.59	0.21	33.09	0.56	0.17	8.14	0.04	0.16	0.03	100.22
Seed-45	57.85	0.11	1.10	0.38	34.74	1.01	0.14	5.58	0.10	0.17	0.00	101.19
Seed-46	57.62	0.13	0.92	0.32	34.38	0.98	0.17	5.36	0.12	0.14	0.00	100.13
Seed-47	57.20	0.16	0.56	0.19	33.18	0.63	0.14	8.02	0.05	0.16	0.00	100.29
Seed-48	57.04	0.14	0.58	0.20	32.97	0.62	0.16	8.01	0.06	0.19	0.01	99.97
Seed-49	57.70	0.11	0.64	0.51	35.05	0.50	0.15	5.52	0.17	0.18	0.00	100.53
Seed-50	57.52	0.06	0.77	0.70	34.37	0.97	0.09	5.02	0.11	0.15	0.01	99.76
Seed-51	57.56	0.15	0.99	0.33	34.70	1.03	0.13	5.55	0.06	0.15	0.00	100.66
Seed-52	57.31	0.20	1.01	0.50	34.34	1.30	0.12	5.16	0.15	0.14	0.00	100.23
Seed-53	57.50	0.15	0.83	0.25	34.32	0.93	0.14	5.57	0.11	0.13	0.00	99.93
Seed-54	57.58	0.14	0.99	0.39	34.02	1.04	0.11	5.63	0.18	0.26	0.00	100.34

Seed. Orthopyroxene. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Seed-55	56.54	0.01	2.99	0.84	33.56	2.04	0.14	4.75	0.10	0.07	0.00	101.01
Seed-56	57.57	0.15	0.89	0.25	34.37	0.92	0.15	5.95	0.07	0.14	0.00	100.46
Seed-57	57.85	0.07	0.94	0.36	34.84	0.97	0.10	5.18	0.19	0.14	0.00	100.64
Seed-58	57.11	0.16	0.49	0.17	33.09	0.59	0.16	8.25	0.06	0.17	0.00	100.26
Seed-59	56.38	0.02	3.04	0.92	34.30	0.86	0.12	4.95	0.06	0.03	0.00	100.67
Seed-60	57.59	0.13	0.86	0.38	34.08	1.03	0.12	5.76	0.13	0.16	0.02	100.27
Seed-61	57.43	0.00	2.03	0.55	34.86	0.81	0.13	4.98	0.07	0.02	0.00	100.88
Seed-62	57.43	0.19	1.04	0.38	34.07	0.98	0.09	5.67	0.14	0.24	0.00	100.22
Seed-63	57.58	0.14	0.94	0.28	34.34	0.98	0.11	5.54	0.17	0.12	0.00	100.20
Seed-64	57.79	0.16	0.98	0.32	34.77	1.05	0.14	5.56	0.13	0.14	0.02	101.06
Seed-65	57.28	0.01	2.00	0.56	35.11	0.58	0.16	4.92	0.07	0.02	0.00	100.71
Seed-66	57.81	0.11	0.93	0.44	34.66	1.03	0.15	5.14	0.09	0.15	0.00	100.49
Seed-67	57.71	0.13	1.00	0.38	34.60	1.08	0.15	5.57	0.14	0.14	0.00	100.89
Seed-68	57.65	0.15	0.98	0.37	34.34	1.02	0.14	5.49	0.11	0.16	0.00	100.41
Seed-69	56.46	0.00	3.12	0.90	34.67	0.54	0.13	4.96	0.13	0.01	0.03	100.96
Seed-70	57.60	0.14	0.96	0.43	34.53	1.06	0.13	5.54	0.12	0.15	0.01	100.66
Seed-71	56.98	0.17	0.61	0.18	33.28	0.56	0.16	7.98	0.10	0.15	0.00	100.16
Seed-72	57.47	0.13	0.91	0.35	34.32	1.03	0.16	5.72	0.15	0.14	0.00	100.37
Seed-73	57.17	0.18	0.62	0.17	32.94	0.62	0.09	8.26	0.08	0.16	0.00	100.29
Seed-74	57.50	0.15	0.89	0.41	34.28	1.01	0.15	5.41	0.12	0.15	0.00	100.07
Seed-75	58.13	0.06	0.61	0.17	34.90	0.45	0.15	5.72	0.10	0.15	0.00	100.45
Seed-76	57.74	0.17	1.02	0.37	34.51	1.00	0.15	5.68	0.16	0.15	0.00	100.95
Seed-77	57.69	0.02	0.85	0.50	34.83	1.06	0.13	5.19	0.13	0.07	0.02	100.47
Seed-78	57.69	0.12	0.93	0.42	34.69	1.05	0.15	5.69	0.12	0.15	0.00	101.02

Seed. Olivine

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Seed-1	41.00	0.03	0.00	0.02	50.46	0.04	0.09	8.18	0.46	0.00	0.00	100.28
Seed-2	40.32	0.04	0.05	0.00	48.80	0.02	0.14	10.26	0.26	0.01	0.04	99.94
Seed-3	39.72	0.02	0.00	0.00	46.05	0.02	0.15	13.49	0.08	0.00	0.00	99.53
Seed-4	40.67	0.02	0.00	0.02	48.67	0.03	0.19	10.33	0.33	0.00	0.02	100.28
Seed-5	40.65	0.00	0.00	0.00	49.66	0.02	0.07	9.05	0.36	0.01	0.00	99.82
Seed-6	40.73	0.02	0.00	0.02	49.61	0.05	0.13	9.46	0.27	0.00	0.01	100.30
Seed-7	40.84	0.03	0.00	0.09	50.23	0.05	0.14	8.24	0.36	0.03	0.00	100.01
Seed-8	40.15	0.04	0.00	0.01	46.36	0.07	0.13	13.45	0.09	0.01	0.00	100.32
Seed-9	40.69	0.02	0.00	0.04	49.34	0.04	0.12	9.93	0.39	0.01	0.00	100.59
Seed-10	41.02	0.04	0.00	0.00	50.57	0.06	0.14	8.47	0.37	0.00	0.00	100.66
Seed-11	40.65	0.00	0.02	0.00	49.65	0.02	0.10	9.64	0.39	0.00	0.00	100.49
Seed-12	40.37	0.01	0.00	0.00	48.72	0.00	0.14	10.28	0.35	0.01	0.00	99.89
Seed-13	40.92	0.04	0.00	0.12	49.74	0.06	0.07	8.92	0.40	0.03	0.00	100.30
Seed-14	40.86	0.04	0.00	0.04	50.14	0.03	0.12	8.88	0.41	0.00	0.00	100.50
Seed-15	40.81	0.02	0.00	0.00	49.38	0.00	0.11	9.86	0.40	0.01	0.00	100.59
Seed-16	40.68	0.01	0.00	0.04	49.49	0.00	0.11	9.30	0.31	0.00	0.03	99.97
Seed-17	39.97	0.01	0.00	0.01	46.58	0.05	0.14	13.19	0.18	0.00	0.00	100.13
Seed-18	40.79	0.03	0.00	0.00	49.01	0.04	0.12	10.23	0.32	0.01	0.00	100.54
Seed-19	40.73	0.00	0.00	0.12	49.80	0.07	0.16	9.07	0.41	0.02	0.00	100.39
Seed-20	41.00	0.04	0.00	0.06	50.06	0.05	0.12	8.65	0.42	0.02	0.00	100.40
Seed-21	40.99	0.02	0.00	0.05	49.51	0.00	0.11	9.81	0.38	0.00	0.01	100.87
Seed-22	41.05	0.00	0.00	0.02	50.26	0.06	0.13	8.96	0.36	0.01	0.00	100.85

Tandem-1. Garnet

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Tandem-gar-1	dk purple	40.71	0.03	18.65	6.41	18.82	6.19	0.47	7.22	0.00	0.02	0.00	98.52	Cr-pyrope
Tandem-gar-2	dk purple	41.18	0.01	20.11	4.80	19.59	5.74	0.43	7.32	0.00	0.00	0.00	99.18	Cr-pyrope
Tandem-gar-3	dk purple	40.33	0.21	18.44	6.39	16.08	6.79	0.63	10.97	0.01	0.04	0.00	99.89	Cr-pyrope
Tandem-gar-4	dk purple	39.99	0.29	17.75	6.80	15.45	6.98	0.63	11.73	0.00	0.02	0.00	99.64	Cr-pyrope
Tandem-gar-5	dk purple	41.32	0.00	19.47	5.75	19.50	5.45	0.49	7.67	0.00	0.00	0.01	99.67	Cr-pyrope
Tandem-gar-6	dk purple	41.21	0.02	20.37	4.77	19.35	5.85	0.42	7.75	0.02	0.00	0.00	99.77	Cr-pyrope
Tandem-gar-7	dk purple	40.18	0.25	18.39	6.20	16.08	6.66	0.59	11.12	0.03	0.01	0.00	99.52	Cr-pyrope
Tandem-gar-8	dk purple	40.25	0.29	18.06	6.44	15.49	6.85	0.64	12.14	0.00	0.02	0.00	100.18	Cr-pyrope
Tandem-gar-9	dk purple	41.09	0.00	19.71	5.36	19.00	6.20	0.46	7.84	0.00	0.01	0.00	99.68	Cr-pyrope
Tandem-gar-10	dk purple	41.44	0.00	19.43	5.74	20.34	4.62	0.47	7.38	0.01	0.00	0.00	99.43	Cr-pyrope
Tandem-gar-11	dk purple	42.14	0.01	21.01	4.06	22.55	2.41	0.47	7.28	0.01	0.01	0.00	99.94	Cr-pyrope
Tandem-gar-12	dk purple	40.21	0.27	18.01	6.55	15.90	6.72	0.47	11.29	0.00	0.02	0.00	99.45	Cr-pyrope
Tandem-gar-13	dk purple	41.26	0.00	19.49	5.93	19.14	5.80	0.49	7.47	0.05	0.02	0.00	99.65	Cr-pyrope
Tandem-gar-14	dk purple	41.39	0.00	19.68	5.20	19.80	4.84	0.46	7.84	0.00	0.00	0.00	99.22	Cr-pyrope
Tandem-gar-15	dk purple	41.46	0.01	20.83	3.56	19.69	5.17	0.40	7.93	0.00	0.01	0.00	99.05	Cr-pyrope
Tandem-gar-16	dk purple	40.20	0.24	18.59	5.45	16.00	6.58	0.53	11.22	0.02	0.02	0.00	98.86	Cr-pyrope
Tandem-gar-17	dk purple	40.12	0.29	19.27	4.61	15.68	6.30	0.55	11.96	0.02	0.01	0.01	98.81	Cr-pyrope
Tandem-gar-18	dk purple	41.33	0.02	19.19	5.54	19.10	5.87	0.36	7.50	0.00	0.01	0.00	98.90	Cr-pyrope
Tandem-gar-19	dk purple	40.51	0.21	18.83	5.35	15.67	6.40	0.63	11.71	0.00	0.02	0.00	99.32	Cr-pyrope
Tandem-gar-20	purple	41.53	0.00	20.34	4.42	20.46	4.09	0.46	7.69	0.00	0.01	0.00	99.02	Cr-pyrope
Tandem-gar-21	purple	41.93	0.00	21.06	3.81	22.63	2.15	0.36	7.57	0.00	0.00	0.00	99.50	Cr-pyrope
Tandem-gar-22	purple	40.27	0.23	18.39	5.78	15.77	6.80	0.56	10.81	0.00	0.02	0.01	98.64	Cr-pyrope
Tandem-gar-23	purple	41.98	0.02	21.12	3.77	22.30	2.24	0.39	7.27	0.04	0.00	0.00	99.13	Cr-pyrope
Tandem-gar-24	purple	41.87	0.01	20.91	3.69	22.23	2.42	0.40	7.30	0.01	0.01	0.00	98.84	Cr-pyrope
Tandem-gar-25	purple	41.49	0.01	20.96	3.95	19.52	5.14	0.43	7.97	0.01	0.03	0.00	99.51	Cr-pyrope
Tandem-gar-26	purple	40.16	0.23	18.26	6.05	15.92	6.68	0.59	10.93	0.00	0.02	0.00	98.83	Cr-pyrope
Tandem-gar-27	purple	41.89	0.02	21.15	3.43	19.66	5.52	0.39	7.58	0.03	0.00	0.00	99.68	Cr-pyrope
Tandem-gar-28	purple	41.18	0.01	19.76	5.52	19.36	5.73	0.43	7.57	0.00	0.02	0.00	99.57	Cr-pyrope
Tandem-gar-29	purple	41.59	0.00	21.41	3.05	19.85	4.94	0.39	7.97	0.03	0.01	0.00	99.24	Cr-pyrope
Tandem-gar-30	purple	41.31	0.02	20.05	4.71	19.15	5.67	0.46	7.58	0.00	0.01	0.00	98.96	Cr-pyrope
Tandem-gar-31	purple	41.11	0.00	19.61	5.73	18.73	6.26	0.48	7.45	0.00	0.01	0.00	99.37	Cr-pyrope
Tandem-gar-32	purple	42.04	0.01	22.48	2.25	20.74	4.97	0.32	7.16	0.02	0.02	0.00	100.01	Cr-pyrope
Tandem-gar-33	purple	41.74	0.02	20.13	4.90	20.42	3.99	0.55	8.44	0.01	0.01	0.00	100.22	Cr-pyrope
Tandem-gar-34	purple	40.17	0.17	18.81	5.49	15.73	6.39	0.60	11.75	0.02	0.02	0.00	99.16	Cr-pyrope
Tandem-gar-35	purple	41.85	0.00	20.45	4.84	20.99	3.81	0.44	7.55	0.02	0.01	0.00	99.96	Cr-pyrope
Tandem-gar-36	purple	41.79	0.01	21.15	4.10	22.42	2.32	0.39	7.38	0.04	0.00	0.00	99.61	Cr-pyrope
Tandem-gar-37	purple	40.27	0.22	18.98	5.34	15.75	6.39	0.63	11.93	0.00	0.02	0.00	99.53	Cr-pyrope
Tandem-gar-38	purple	41.45	0.01	20.39	4.56	19.54	5.72	0.40	7.30	0.04	0.02	0.00	99.43	Cr-pyrope
Tandem-gar-39	purple	41.97	0.00	21.89	2.59	20.19	4.75	0.46	8.31	0.00	0.03	0.00	100.21	Cr-pyrope
Tandem-gar-40	purple	40.33	0.29	18.66	5.85	16.09	6.56	0.55	11.58	0.00	0.02	0.00	99.94	Cr-pyrope
Tandem-gar-41	purple	41.81	0.00	20.81	4.26	22.20	2.44	0.43	7.29	0.02	0.02	0.00	99.26	Cr-pyrope
Tandem-gar-42	purple	41.33	0.00	19.76	5.27	19.26	5.80	0.44	7.76	0.01	0.02	0.00	99.66	Cr-pyrope
Tandem-gar-43	purple	41.26	0.00	19.15	6.02	19.58	5.61	0.45	7.31	0.07	0.02	0.00	99.47	Cr-pyrope
Tandem-gar-44	purple	41.97	0.00	21.29	3.93	22.39	2.53	0.43	7.36	0.00	0.01	0.00	99.93	Cr-pyrope
Tandem-gar-45	purple	41.43	0.01	18.99	6.54	18.61	6.64	0.44	7.51	0.00	0.01	0.00	100.18	Cr-pyrope
Tandem-gar-46	purple	41.35	0.01	20.76	3.85	19.52	5.27	0.41	7.99	0.00	0.01	0.00	99.17	Cr-pyrope
Tandem-gar-47	purple	41.17	0.03	18.50	6.89	18.74	6.50	0.52	7.27	0.00	0.00	0.00	99.62	Cr-pyrope
Tandem-gar-48	purple	41.25	0.03	19.50	5.52	19.28	5.98	0.47	7.47	0.04	0.00	0.00	99.53	Cr-pyrope
Tandem-gar-49	purple	41.39	0.01	19.72	5.62	19.32	5.85	0.46	7.60	0.02	0.01	0.00	100.00	Cr-pyrope
Tandem-gar-50	purple	41.36	0.00	20.28	4.95	19.30	5.77	0.41	7.71	0.00	0.01	0.00	99.80	Cr-pyrope
Tandem-gar-51	purple	42.02	0.04	20.92	4.10	22.43	2.25	0.46	7.26	0.00	0.01	0.00	99.50	Cr-pyrope
Tandem-gar-52	purple	41.48	0.03	20.78	4.01	19.71	5.23	0.48	7.91	0.00	0.01	0.00	99.65	Cr-pyrope
Tandem-gar-53	purple	41.90	0.02	21.18	4.16	22.48	2.31	0.44	7.26	0.04	0.01	0.01	99.81	Cr-pyrope
Tandem-gar-54	purple	41.45	0.01	20.08	4.95	20.51	4.03	0.50	7.73	0.04	0.01	0.00	99.32	Cr-pyrope
Tandem-gar-55	purple	41.35	0.02	20.41	4.55	19.17	5.73	0.47	8.10	0.01	0.00	0.00	99.80	Cr-pyrope
Tandem-gar-56	purple	42.04	0.04	21.95	2.46	20.12	4.64	0.44	8.12	0.00	0.02	0.00	99.82	Cr-pyrope

Tandem-1. Garnet. continued

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Tandem-gar-57	purple	41.71	0.00	20.32	4.74	19.53	5.65	0.40	7.42	0.00	0.01	0.00	99.77	Cr-pyrope
Tandem-gar-58	purple	41.35	0.03	20.82	3.78	19.49	5.32	0.45	7.98	0.03	0.02	0.00	99.27	Cr-pyrope
Tandem-gar-59	purple	40.82	0.02	19.05	6.27	18.26	6.73	0.49	7.39	0.01	0.01	0.00	99.05	Cr-pyrope
Tandem-gar-60	purple	41.21	0.00	20.11	4.88	19.05	5.82	0.43	7.95	0.00	0.01	0.00	99.46	Cr-pyrope
Tandem-gar-61	purple	41.98	0.00	20.97	4.06	22.23	2.25	0.40	7.11	0.01	0.01	0.00	99.03	Cr-pyrope
Tandem-gar-62	purple	41.98	0.00	20.36	4.85	20.40	3.79	0.56	8.45	0.00	0.02	0.00	100.41	Cr-pyrope
Tandem-gar-63	purple	41.68	0.06	20.19	4.66	19.17	5.70	0.39	8.09	0.00	0.02	0.00	99.95	Cr-pyrope
Tandem-gar-64	purple	41.38	0.02	20.21	4.79	19.37	5.80	0.42	7.74	0.00	0.01	0.00	99.73	Cr-pyrope
Tandem-gar-65	purple	41.19	0.00	20.01	5.06	19.15	5.86	0.47	7.58	0.02	0.01	0.01	99.39	Cr-pyrope
Tandem-gar-66	purple	42.09	0.00	21.54	3.55	22.74	2.56	0.36	6.71	0.01	0.02	0.00	99.57	Cr-pyrope
Tandem-gar-67	purple	41.28	0.01	19.42	5.89	20.23	4.79	0.37	7.36	0.00	0.03	0.00	99.38	Cr-pyrope
Tandem-gar-68	purple	42.05	0.00	20.96	4.22	22.45	2.34	0.40	7.29	0.01	0.00	0.00	99.72	Cr-pyrope
Tandem-gar-69	purple	41.12	0.01	19.54	5.56	19.23	5.89	0.43	7.60	0.00	0.03	0.01	99.40	Cr-pyrope
Tandem-gar-70	purple	41.51	0.00	20.03	4.94	19.22	5.84	0.43	7.61	0.03	0.01	0.00	99.63	Cr-pyrope
Tandem-gar-71	purple	40.98	0.01	19.75	5.78	19.22	5.78	0.44	7.73	0.00	0.01	0.00	99.70	Cr-pyrope
Tandem-gar-72	purple	40.43	0.25	18.23	6.55	16.06	6.83	0.57	10.66	0.00	0.02	0.00	99.60	Cr-pyrope
Tandem-gar-73	purple	41.56	0.04	21.09	3.30	19.71	5.63	0.37	7.47	0.00	0.01	0.00	99.18	Cr-pyrope
Tandem-gar-74	purple	41.65	0.00	20.46	4.79	19.77	5.73	0.37	7.44	0.03	0.01	0.00	100.25	Cr-pyrope
Tandem-gar-75	purple	41.54	0.02	20.12	4.52	19.64	5.36	0.45	7.73	0.02	0.02	0.01	99.42	Cr-pyrope
Tandem-gar-76	purple	41.19	0.03	19.80	4.95	19.02	5.62	0.46	8.12	0.03	0.02	0.00	99.25	Cr-pyrope
Tandem-gar-77	purple	41.81	0.03	20.69	4.21	22.32	2.25	0.42	7.30	0.01	0.01	0.01	99.06	Cr-pyrope
Tandem-gar-78	purple	41.57	0.04	20.03	4.98	19.40	5.87	0.44	7.68	0.00	0.03	0.01	100.06	Cr-pyrope
Tandem-gar-79	purple	42.13	0.00	21.12	3.88	22.46	2.19	0.42	7.47	0.00	0.00	0.00	99.67	Cr-pyrope
Tandem-gar-80	purple	40.41	0.25	18.59	6.14	16.26	6.57	0.65	11.18	0.00	0.04	0.00	100.07	Cr-pyrope
Tandem-gar-81	purple	41.62	0.02	21.16	3.21	19.54	5.59	0.40	7.59	0.03	0.00	0.00	99.17	Cr-pyrope
Tandem-gar-82	purple	41.68	0.01	21.21	3.35	19.81	5.51	0.34	7.86	0.03	0.03	0.00	99.82	Cr-pyrope
Tandem-gar-83	purple	40.38	0.28	18.37	6.13	16.11	6.76	0.61	11.23	0.00	0.03	0.00	99.90	Cr-pyrope
Tandem-gar-84	purple	41.93	0.00	20.76	4.13	22.39	2.32	0.48	7.26	0.00	0.01	0.01	99.30	Cr-pyrope
Tandem-gar-85	purple	41.43	0.00	20.34	4.57	19.40	5.64	0.47	7.78	0.03	0.02	0.00	99.68	Cr-pyrope
Tandem-gar-86	purple	41.70	0.02	21.02	3.95	19.85	5.23	0.40	7.86	0.01	0.02	0.00	100.07	Cr-pyrope
Tandem-gar-87	purple	41.90	0.00	21.93	2.51	20.22	4.87	0.36	8.01	0.01	0.02	0.01	99.83	Cr-pyrope
Tandem-gar-88	purple	41.72	0.00	21.12	3.57	19.99	5.25	0.41	7.75	0.00	0.02	0.00	99.82	Cr-pyrope
Tandem-gar-89	purple	40.10	0.23	18.59	5.94	16.07	6.65	0.52	11.12	0.00	0.02	0.00	99.23	Cr-pyrope
Tandem-gar-90	purple	40.70	0.04	18.26	6.98	17.98	6.57	0.44	8.08	0.02	0.00	0.00	99.07	Cr-pyrope
Tandem-gar-91	purple	41.18	0.00	19.66	5.73	19.31	5.74	0.48	7.59	0.00	0.02	0.00	99.70	Cr-pyrope
Tandem-gar-92	purple	40.16	0.26	18.44	6.33	15.99	6.85	0.54	10.84	0.02	0.04	0.01	99.47	Cr-pyrope
Tandem-gar-93	purple	40.12	0.24	18.40	6.15	15.84	6.78	0.63	11.06	0.01	0.05	0.00	99.28	Cr-pyrope
Tandem-gar-94	purple	39.88	0.26	18.44	6.36	15.92	6.76	0.61	10.86	0.00	0.04	0.00	99.15	Cr-pyrope
Tandem-gar-95	purple	41.85	0.02	21.11	3.74	22.05	2.57	0.42	7.51	0.00	0.04	0.00	99.30	Cr-pyrope
Tandem-gar-96	purple	40.76	0.04	18.52	6.67	18.14	6.55	0.44	8.21	0.04	0.01	0.00	99.38	Cr-pyrope
Tandem-gar-97	purple	41.90	0.03	20.04	4.69	20.46	4.40	0.50	7.81	0.00	0.02	0.00	99.85	Cr-pyrope
Tandem-gar-98	purple	40.95	0.00	18.69	6.81	18.84	6.35	0.46	7.17	0.00	0.01	0.00	99.27	Cr-pyrope
Tandem-gar-99	purple	41.43	0.01	19.23	6.12	20.10	5.21	0.46	7.09	0.00	0.02	0.01	99.69	Cr-pyrope
Tandem-gar-100	purple	41.09	0.03	19.28	6.13	18.87	6.11	0.48	7.78	0.01	0.00	0.00	99.77	Cr-pyrope
Tandem-gar-101	purple	41.53	0.03	20.39	4.43	19.32	5.42	0.57	8.22	0.02	0.01	0.00	99.93	Cr-pyrope
Tandem-gar-102	purple	42.00	0.03	21.16	4.27	22.53	2.20	0.36	7.52	0.00	0.01	0.00	100.08	Cr-pyrope
Tandem-gar-103	purple	41.61	0.03	20.47	4.79	20.64	4.09	0.48	7.72	0.04	0.01	0.00	99.88	Cr-pyrope
Tandem-gar-104	purple	41.46	0.02	19.22	6.12	19.00	6.19	0.46	7.46	0.00	0.02	0.01	99.95	Cr-pyrope
Tandem-gar-105	purple	42.09	0.01	21.22	3.67	22.50	2.71	0.38	6.82	0.01	0.03	0.00	99.44	Cr-pyrope
Tandem-gar-106	purple	41.29	0.02	19.97	5.12	19.11	5.76	0.46	7.73	0.02	0.00	0.00	99.49	Cr-pyrope
Tandem-gar-107	purple	41.39	0.01	20.15	4.88	19.57	5.60	0.46	7.48	0.01	0.02	0.00	99.57	Cr-pyrope
Tandem-gar-108	purple	41.67	0.00	20.60	4.06	19.66	5.30	0.45	7.67	0.00	0.02	0.00	99.44	Cr-pyrope
Tandem-gar-109	purple	42.10	0.02	21.08	4.28	22.57	2.30	0.45	7.18	0.03	0.01	0.00	100.02	Cr-pyrope
Tandem-gar-110	purple	41.45	0.00	21.03	3.44	19.64	5.49	0.36	7.79	0.00	0.02	0.01	99.23	Cr-pyrope
Tandem-gar-111	purple	41.60	0.03	19.75	5.06	19.15	5.75	0.43	8.00	0.02	0.04	0.00	99.81	Cr-pyrope
Tandem-gar-112	purple	40.28	0.26	18.57	6.30	16.08	6.67	0.57	11.22	0.01	0.02	0.00	99.98	Cr-pyrope

Tandem-1. Garnet. continued

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Tandem-gar-113	purple	41.61	0.06	20.99	3.31	19.64	5.54	0.38	7.47	0.00	0.01	0.00	99.02	Cr-pyrope
Tandem-gar-114	purple	41.36	0.01	19.56	5.65	19.22	6.01	0.41	7.59	0.01	0.01	0.01	99.84	Cr-pyrope
Tandem-gar-115	purple	41.09	0.00	19.19	6.18	18.87	6.23	0.47	7.45	0.04	0.00	0.00	99.53	Cr-pyrope
Tandem-gar-116	purple	42.00	0.00	21.20	4.04	22.75	1.94	0.48	7.46	0.02	0.01	0.00	99.90	Cr-pyrope
Tandem-gar-117	purple	40.25	0.23	18.38	6.18	15.88	7.06	0.54	11.03	0.04	0.03	0.01	99.63	Cr-pyrope
Tandem-gar-118	purple	41.61	0.00	20.34	4.76	21.76	2.92	0.45	7.72	0.00	0.00	0.00	99.57	Cr-pyrope
Tandem-gar-119	purple	41.57	0.01	19.84	5.51	19.11	5.82	0.41	7.64	0.00	0.02	0.00	99.92	Cr-pyrope
Tandem-gar-120	purple	41.49	0.04	20.09	4.87	19.31	5.79	0.44	7.72	0.04	0.01	0.00	99.79	Cr-pyrope
Tandem-gar-121	purple	41.51	0.03	20.05	4.77	19.43	5.72	0.36	7.69	0.03	0.02	0.00	99.62	Cr-pyrope
Tandem-gar-122	purple	41.81	0.03	20.79	4.41	21.83	3.09	0.49	7.63	0.00	0.00	0.00	100.10	Cr-pyrope
Tandem-gar-123	red purple	41.68	0.69	20.87	1.69	20.63	4.69	0.26	8.46	0.00	0.07	0.01	99.05	Pyrope
Tandem-gar-124	red purple	41.64	0.86	20.52	2.11	20.56	4.81	0.29	8.70	0.04	0.08	0.00	99.60	Cr-pyrope
Tandem-gar-125	red purple	41.81	0.76	20.73	1.91	20.80	4.62	0.27	8.37	0.03	0.08	0.01	99.39	Pyrope
Tandem-gar-126	red purple	40.18	0.24	19.22	5.22	15.83	6.27	0.60	12.01	0.02	0.02	0.00	99.61	Cr-pyrope
Tandem-gar-127	red purple	40.32	0.22	18.94	5.33	15.75	6.35	0.60	11 78	0.02	0.02	0.00	99.32	Cr-pyrope
Tandem-gar-128	red purple	40.35	0.25	17.88	6.39	15.81	6.92	0.46	11.38	0.01	0.02	0.00	99.47	Cr-pyrope
Tandem-gar-129	red purple	41.64	0.83	20.68	1.85	20.14	4.53	0.30	9.06	0.00	0.09	0.00	99.12	Pyrope
Tandem-gar-130	red purple	40.49	0.23	18.74	5.73	15.82	6.41	0.66	11.73	0.00	0.02	0.00	99.84	Cr-pyrope
Tandem-gar-131	red purple	40.46	0.24	19.13	4.91	15.81	6.28	0.57	11.94	0.02	0.03	0.00	99.37	Cr-pyrope
Tandem-gar-132	red purple	42.12	0.83	21.07	1.66	20.51	4.59	0.34	9.08	0.00	0.07	0.01	100.28	Pyrope
Tandem-gar-133	red purple	41.65	0.85	20.38	2.07	20.25	4.88	0.23	8.60	0.04	0.08	0.00	99.03	Cr-pyrope
Tandem-gar-134	red purple	41.69	0.86	20.62	2.06	20.67	4.81	0.26	8.72	0.01	0.08	0.00	99.78	Cr-pyrope
Tandem-gar-135	red purple	40.24	0.21	18.51	6.24	15.89	6.74	0.62	11.04	0.03	0.02	0.00	99.53	Cr-pyrope
Tandem-gar-136	red purple	41.93	0.64	21.01	1.91	21.04	4.49	0.21	8.15	0.00	0.07	0.00	99.46	Pyrope
Tandem-gar-137	red purple	41.64	0.64	20.52	2.35	20.90	4.60	0.26	7.87	0.00	0.09	0.00	98.88	Cr-pyrope
Tandem-gar-138	red purple	41.62	0.82	20.82	1.69	20.18	4.68	0.25	9.01	0.03	0.08	0.00	99.20	Pyrope
Tandem-gar-139	red purple	40.41	0.29	18.59	5.98	15.83	6.50	0.57	11.72	0.00	0.02	0.00	99.92	Cr-pyrope
Tandem-gar-140	red purple	41.98	0.82	20.92	1.51	20.44	4.51	0.32	9.12	0.02	0.08	0.00	99.72	Pyrope
Tandem-gar-141	red purple	41.40	0.96	20.70	1.55	20.30	4.87	0.22	9.01	0.00	0.07	0.01	99.07	Pyrope
Tandem-gar-142	red purple	41.74	0.85	20.59	2.09	20.65	4.64	0.26	8.69	0.00	0.06	0.00	99.58	Cr-pyrope
Tandem-gar-143	red purple	40.59	0.24	19.31	4.96	16.04	6.13	0.61	12.04	0.02	0.02	0.00	99.97	Cr-pyrope
Tandem-gar-144	red purple	41.70	1.03	20.93	1.17	19.98	4.62	0.34	10.20	0.00	0.08	0.00	100.03	Pyrope
Tandem-gar-145	red purple	40.03	0.24	19.24	5.12	15.94	6.30	0.57	11.95	0.00	0.02	0.02	99.42	Cr-pyrope
Tandem-gar-146	red purple	42.24	0.72	20.98	1.81	20.83	4.55	0.28	8.45	0.00	0.07	0.00	99.92	Pyrope
Tandem-gar-147	red purple	39.96	0.29	18.18	6.42	15.63	6.66	0.60	11.73	0.00	0.03	0.00	99.51	Cr-pyrope
Tandem-gar-148	red purple	40.31	0.25	18.79	5.63	15.99	6.45	0.66	12.04	0.00	0.03	0.00	100.15	Cr-pyrope
Tandem-gar-149	red purple	41.90	0.68	20.79	2.05	20.86	4.64	0.27	8.01	0.03	0.08	0.00	99.31	Cr-pyrope
Tandem-gar-150	red purple	40.36	0.25	18.87	5.55	15.82	6.43	0.59	11.61	0.02	0.03	0.01	99.54	Cr-pyrope
Tandem-gar-151	red purple	40.37	0.26	19.20	4.80	15.86	6.42	0.56	11.91	0.00	0.01	0.00	99.38	Cr-pyrope
Tandem-gar-152	red purple	40.37	0.28	19.12	5.26	15.90	6.28	0.59	12.09	0.00	0.02	0.00	99.91	Cr-pyrope
Tandem-gar-153	red purple	40.52	0.25	18.68	5.43	15.70	6.44	0.57	11.63	0.03	0.02	0.00	99.29	Cr-pyrope
Tandem-gar-154	red purple	40.23	0.27	19.29	4.94	16.06	6.31	0.57	12.02	0.00	0.01	0.00	99.69	Cr-pyrope
Tandem-gar-155	red purple	40.39	0.27	18.81	5.75	15.74	6.39	0.66	11.95	0.00	0.02	0.00	99.98	Cr-pyrope
Tandem-gar-156	red purple	41.87	0.72	19.88	3.98	21.41	4.55	0.25	6.81	0.00	0.10	0.01	99.58	Cr-pyrope
Tandem-gar-157	red purple	40.52	0.25	18.60	5.87	16.22	6.56	0.58	11.17	0.06	0.01	0.00	99.85	Cr-pyrope
Tandem-gar-158	red purple	41.61	0.82	20.46	2.16	20.60	4.81	0.27	8.53	0.00	0.07	0.00	99.33	Cr-pyrope
Tandem-gar-159	red purple	40.34	0.24	19.36	4.85	15.83	6.21	0.55	12.04	0.00	0.02	0.00	99.45	Cr-pyrope
Tandem-gar-160	red purple	41.52	0.90	20.50	2.16	20.48	4.65	0.27	8.54	0.02	0.07	0.01	99.12	Cr-pyrope
Tandem-gar-161	red purple	40.70	0.27	19.20	5.26	16.03	6.24	0.52	11.98	0.02	0.02	0.01	100.24	Cr-pyrope
Tandem-gar-162	red purple	40.44	0.25	19.19	5.24	15.86	6.40	0.50	11.89	0.02	0.03	0.00	99.83	Cr-pyrope
Tandem-gar-163	red purple	40.28	0.25	19.37	4.97	15.97	6.23	0.61	11.98	0.02	0.03	0.00	99.72	Cr-pyrope
Tandem-gar-164	red purple	40.39	0.23	19.04	5.15	15.85	6.28	0.57	11.93	0.00	0.02	0.01	99.47	Cr-pyrope
Tandem-gar-165	orange	41.19	0.17	22.40	0.73	16.66	4.75	0.43	14.32	0.02	0.03	0.00	100.70	Pyrope
Tandem-gar-166	orange	41.99	0.73	20.94	1.88	21.19	4.63	0.24	8.43	0.03	0.07	0.01	100.13	Pyrope
Tandem-gar-167	orange	41.72	0.12	22.94	0.67	18.81	5.21	0.36	10.85	0.06	0.01	0.00	100.74	Pyrope
Tandem-gar-168	orange	42.15	0.62	20.95	2.08	21.34	4.60	0.25	8.38	0.01	0.06	0.00	100.46	Cr-pyrope

Tandem-1. Garnet. continued

Sample	colour	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Tandem-gar-169	orange	42.40	0.73	21.20	1.99	21.08	4.68	0.30	8.28	0.01	0.07	0.00	100.74	Pyrope
Tandem-gar-170	orange	42.07	0.79	21.11	1.90	21.00	4.62	0.21	8.91	0.03	0.06	0.00	100.71	Pyrope
Tandem-gar-172	orange	41.41	0.16	22.03	1.85	17.29	4.85	0.48	12.83	0.03	0.03	0.00	100.95	Pyrope
Tandem-gar-173	orange	41.79	0.73	21.39	1.47	20.79	4.57	0.28	8.99	0.00	0.06	0.00	100.05	Pyrope
Tandem-gar-174	orange	42.08	0.87	21.26	1.42	20.48	4.71	0.28	8.93	0.05	0.06	0.00	100.14	Pyrope
Tandem-gar-175	orange	41.02	0.15	22.37	0.76	16.62	4.73	0.39	14.29	0.01	0.02	0.00	100.38	Pyrope
Tandem-gar-176	orange	41.83	0.02	20.40	4.96	19.49	5.79	0.45	7.50	0.03	0.01	0.00	100.47	Cr-pyrope
Tandem-gar-177	orange	41.96	0.82	20.80	1.94	20.84	4.80	0.26	8.70	0.03	0.06	0.00	100.22	Pyrope
Tandem-gar-178	orange	41.92	0.88	20.70	2.15	20.75	4.85	0.21	8.62	0.03	0.06	0.00	100.19	Cr-pyrope
Tandem-gar-179	orange	41.91	0.86	20.95	2.00	20.78	4.73	0.23	8.59	0.00	0.06	0.00	100.11	Pyrope
Tandem-gar-180	orange	42.05	0.65	20.92	2.15	21.38	4.44	0.24	8.34	0.00	0.05	0.00	100.22	Cr-pyrope
Tandem-gar-181	orange	42.22	0.77	21.36	1.70	20.95	4.62	0.24	8.74	0.06	0.07	0.00	100.73	Pyrope
Tandem-gar-182	orange	41.29	0.15	21.94	1.65	17.22	4.92	0.47	12.72	0.04	0.03	0.01	100.43	Pyrope
Tandem-gar-183	orange	42.07	0.78	21.29	1.67	20.62	4.65	0.25	9.29	0.00	0.08	0.00	100.70	Pyrope
Tandem-gar-184	orange	42.28	0.71	21.12	1.94	21.13	4.60	0.32	8.23	0.06	0.07	0.00	100.45	Pyrope
Tandem-gar-185	orange	41.96	0.73	21.09	1.85	21.04	4.56	0.23	8.19	0.00	0.06	0.01	99.71	Pyrope
Tandem-gar-186	orange	42.14	0.73	21.04	1.96	21.29	4.64	0.30	8.42	0.05	0.05	0.00	100.62	Pyrope
Tandem-gar-187	orange	40.87	0.12	21.74	1.76	17.17	4.78	0.48	12.80	0.01	0.02	0.00	99.75	Pyrope
Tandem-gar-188	orange	42.25	0.77	21.36	1.68	20.62	4.65	0.26	9.37	0.03	0.07	0.00	101.06	Pyrope
Tandem-gar-189	orange	41.82	0.96	20.87	1.62	20.42	4.88	0.30	9.35	0.01	0.07	0.00	100.29	Pyrope
Tandem-gar-190	orange	42.04	0.74	20.94	1.82	21.07	4.68	0.22	8.44	0.00	0.07	0.00	100.03	Pyrope
Tandem-gar-191	orange	42.13	0.71	20.91	1.98	21.03	4.59	0.26	8.37	0.00	0.06	0.00	100.04	Pyrope
Tandem-gar-192	orange	42.22	0.74	21.11	1.88	21.23	4.62	0.25	8.38	0.01	0.07	0.00	100.50	Pyrope
Tandem-gar-193	orange	42.19	0.70	21.02	1.99	21.48	4.54	0.26	8.31	0.02	0.08	0.00	100.59	Pyrope
Tandem-gar-194	orange	42.15	0.75	20.70	2.04	21.12	4.67	0.26	8.28	0.05	0.08	0.00	100.10	Cr-pyrope
Tandem-gar-195	orange	42.00	0.74	20.91	1.87	21.00	4.66	0.24	8.29	0.06	0.07	0.00	99.85	Pyrope
Tandem-gar-196	orange	41.78	0.07	23.32	0.61	18.87	5.05	0.29	10.88	0.00	0.02	0.01	100.92	Pyrope
Tandem-gar-197	orange	41.87	0.76	20.96	1.93	20.78	4.69	0.26	8.55	0.03	0.08	0.00	99.90	Pyrope
Tandem-gar-198	orange	41.46	0.16	21.89	1.89	17.43	4.97	0.45	12.91	0.03	0.01	0.00	101.19	Pyrope
Tandem-gar-199	orange	40.91	0.13	21.74	1.84	17.25	4.97	0.44	12.63	0.00	0.02	0.00	99.92	Pyrope
Tandem-gar-200	orange	42.14	0.48	21.63	1.67	21.16	4.26	0.27	8.25	0.00	0.07	0.01	99.96	Pyrope
Tandem-gar-201	orange	42.06	0.73	21.16	1.90	21.16	4.59	0.25	8.33	0.02	0.07	0.01	100.28	Pyrope
Tandem-gar-202	orange	42.28	0.76	21.24	2.08	21.30	4.80	0.20	8.53	0.01	0.05	0.00	101.25	Cr-pyrope
Tandem-gar-203	orange	42.08	0.80	21.21	1.69	20.73	4.80	0.27	9.21	0.02	0.06	0.00	100.89	Pyrope
Tandem-gar-204	orange	41.97	0.74	21.05	1.85	21.18	4.51	0.22	8.60	0.01	0.06	0.00	100.17	Pyrope
Tandem-gar-205	orange	42.10	0.69	21.29	1.90	21.04	4.56	0.30	8.56	0.01	0.05	0.00	100.51	Pyrope
Tandem-gar-206	orange	42.41	0.73	21.22	1.98	21.02	4.69	0.24	8.34	0.04	0.07	0.00	100.73	Pyrope
Tandem-gar-207	orange	42.09	0.72	20.98	1.90	21.03	4.66	0.25	8.47	0.01	0.06	0.00	100.17	Pyrope
Tandem-gar-208	orange	42.05	0.78	21.06	2.07	21.00	4.64	0.27	8.49	0.03	0.06	0.00	100.46	Cr-pyrope
Tandem-gar-209	orange	41.95	0.79	20.84	2.19	20.75	4.81	0.27	8.69	0.05	0.07	0.00	100.40	Cr-pyrope
Tandem-gar-210	orange	42.08	0.79	20.99	2.17	21.13	4.60	0.23	8.49	0.05	0.06	0.00	100.60	Cr-pyrope
Tandem-gar-211	orange	42.29	0.76	21.05	2.03	21.11	4.82	0.27	8.30	0.03	0.05	0.00	100.71	Cr-pyrope
Tandem-gar-212	orange	42.05	0.73	21.17	1.90	20.88	4.68	0.33	8.42	0.00	0.07	0.01	100.23	Pyrope
Tandem-gar-213	orange	42.50	0.67	21.44	1.86	21.30	4.49	0.26	8.15	0.04	0.05	0.00	100.76	Pyrope
Tandem-gar-214	orange	42.00	0.72	20.93	1.91	21.12	4.76	0.19	8.14	0.02	0.06	0.00	99.85	Pyrope
Tandem-gar-215	orange	41.25	0.12	22.37	0.59	16.99	4.74	0.51	13.86	0.00	0.01	0.00	100.44	Pyrope
Tandem-gar-216	orange	42.43	0.63	21.26	2.12	21.18	4.43	0.24	8.00	0.03	0.04	0.00	100.38	Cr-pyrope
Tandem-gar-217	orange	42.16	0.65	20.99	2.02	21.30	4.57	0.25	8.31	0.00	0.05	0.00	100.29	Cr-pyrope
Tandem-gar-218	orange	42.25	0.74	21.31	1.73	21.04	4.53	0.27	8.80	0.02	0.06	0.01	100.77	Pyrope
Tandem-gar-219	orange	42.13	0.66	20.95	1.83	21.20	4.57	0.21	8.44	0.01	0.07	0.00	100.08	Pyrope
Tandem-gar-220	orange	42.19	0.76	21.02	2.11	21.15	4.68	0.26	8.30	0.00	0.05	0.00	100.52	Cr-pyrope
Tandem-gar-221	orange	41.85	0.80	20.64	2.14	20.70	4.71	0.24	8.69	0.00	0.07	0.00	99.84	Cr-pyrope
Tandem-gar-222	orange	41.11	0.09	22.57	0.66	17.27	4.34	0.45	13.68	0.03	0.02	0.00	100.23	Pyrope
Tandem-gar-223	orange	42.17	0.72	21.15	1.97	20.89	4.66	0.26	8.69	0.02	0.05	0.00	100.57	Pyrope
Tandem-gar-224	orange	42.28	0.81	21.19	2.03	21.11	4.77	0.20	8.41	0.04	0.07	0.00	100.90	Cr-pyrope
Tandem-gar-225	orange	42.33	0.71	21.04	2.03	21.09	4.66	0.23	8.40	0.02	0.07	0.00	100.59	Cr-pyrope

Tandem-1. Garnet. continued

Sample	colour	SiO2	TiO2	.)2O3	Cr2O3	MgO	CaO	MnO	FeO*	NiO	Na2O	K2O	Total	I.D.
Tandem-gar-226	orange	42.00	0.69	20.90	2.11	21.03	4.61	0.23	8.56	0.00	0.06	0.00	100.20	Cr-pyrope
Tandem-gar-227	orange	42.37	0.66	21.42	1.90	21.37	4.63	0.23	8.58	0.05	0.06	0.00	101.27	Pyrope
Tandem-gar-228	orange	41.21	0.14	22.25	0.70	16.64	4.74	0.43	14.18	0.06	0.01	0.01	100.37	Pyrope
Tandem-gar-230	orange	42.21	0.68	21.10	1.72	20.86	4.59	0.25	8.97	0.04	0.07	0.00	100.50	Pyrope
Tandem-gar-231	orange	42.01	0.62	21.13	1.93	21.17	4.45	0.32	8.28	0.05	0.05	0.00	100.01	Pyrope
Tandem-gar-232	orange	41.10	0.15	22.52	0.69	16.65	4.70	0.42	14.55	0.01	0.01	0.00	100.80	Pyrope
Tandem-gar-233	orange	42.11	0.81	20.95	2.16	21.04	4.74	0.25	8.25	0.03	0.07	0.01	100.42	Cr-pyrope
Tandem-gar-234	orange	41.85	0.87	20.61	2.15	20.87	4.78	0.28	8.61	0.00	0.07	0.00	100.08	Cr-pyrope
Tandem-gar-235	orange	42.14	0.79	21.29	1.94	21.15	4.71	0.22	8.36	0.02	0.06	0.00	100.68	Pyrope
Tandem-gar-236	orange	42.14	0.82	20.83	2.15	20.84	4.81	0.28	8.72	0.02	0.05	0.01	100.68	Cr-pyrope
Tandem-gar-237	orange	42.11	0.83	20.78	1.96	20.82	4.85	0.27	8.73	0.03	0.07	0.00	100.47	Pyrope
Tandem-gar-238	orange	41.07	0.17	22.43	0.74	16.73	4.73	0.53	14.31	0.00	0.02	0.00	100.72	Pyrope
Tandem-gar-239	orange	42.12	0.73	21.18	1.81	20.84	4.57	0.28	8.65	0.04	0.06	0.00	100.27	Pyrope
Tandem-gar-240	orange	42.01	0.80	20.98	1.89	21.19	4.70	0.29	8.29	0.03	0.08	0.00	100.25	Pyrope
Tandem-gar-241	orange	41.26	0.18	21.62	1.88	17.23	4.96	0.42	12.86	0.03	0.03	0.01	100.47	Pyrope
Tandem-gar-242	orange	42.20	0.65	21.17	1.28	20.84	4.49	0.29	9.08	0.03	0.08	0.00	100.11	Pyrope
Tandem-gar-243	orange	41.89	0.79	21.27	1.70	20.81	4.71	0.30	9.25	0.00	0.08	0.00	100.79	Pyrope
Tandem-gar-244	orange	41.89	0.78	21.03	1.63	20.37	4.64	0.28	9.20	0.00	0.07	0.00	99.89	Pyrope

Tandem-1. Chromite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
Tandem-oxi-1	0.00	0.09	0.00	15.07	54.76	0.13	11.85	0.00	0.20	17.05	0.03	0.15	99.33	1.10	16.06	99.44
Tandem-oxi-2	0.03	0.01	0.06	14.20	57.24	0.21	12.89	0.01	0.21	14.52	0.07	0.11	99.56	0.02	14.51	99.56
Tandem-oxi-3	0.03	0.46	0.01	17.47	46.07	0.12	11.24	0.00	0.14	23.54	0.16	0.13	99.38	6.41	17.78	100.02
Tandem-oxi-4	0.00	0.04	0.02	12.81	58.68	0.22	11.57	0.00	0.13	16.16	0.08	0.12	99.82	0.00	16.16	99.82
Tandem-oxi-5	0.04	0.00	0.00	11.83	58.53	0.40	11.16	0.00	0.21	17.47	0.08	0.13	99.84	0.41	17.09	99.88
Tandem-oxi-6	0.01	0.34	0.00	16.15	51.77	0.16	11.50	0.00	0.20	19.03	0.13	0.12	99.41	2.23	17.02	99.64
Tandem-oxi-7	0.00	0.49	0.00	19.44	48.38	0.29	12.51	0.01	0.07	17.70	0.13	0.14	99.16	1.54	16.31	99.32
Tandem-oxi-8	0.01	0.03	0.04	16.73	53.68	0.11	12.31	0.00	0.23	16.13	0.08	0.14	99.48	0.63	15.56	99.55
Tandem-oxi-9	0.03	0.54	0.03	21.78	45.78	0.26	12.91	0.00	0.33	17.99	0.15	0.14	99.95	2.06	16.14	100.16
Tandem-oxi-10	0.00	1.31	0.02	12.76	43.52	0.19	9.85	0.00	0.30	30.44	0.26	0.16	98.81	12.02	19.63	100.02
Tandem-oxi-11	0.02	0.19	0.00	11.49	57.84	0.38	11.43	0.00	0.13	17.82	0.07	0.11	99.49	1.19	16.75	99.61
Tandem-oxi-12	0.00	0.05	0.05	13.65	55.83	0.29	11.41	0.02	0.27	17.55	0.06	0.20	99.37	1.06	16.60	99.48
Tandem-oxi-13	0.00	0.00	0.00	11.53	59.23	0.40	11.38	0.00	0.12	16.90	0.06	0.12	99.74	0.17	16.74	99.76
Tandem-oxi-14	0.01	0.06	0.00	11.15	58.59	0.38	10.63	0.01	0.29	18.30	0.05	0.13	99.60	0.73	17.65	99.67
Tandem-oxi-15	0.05	0.69	0.00	21.53	47.56	0.25	13.49	0.01	0.19	15.99	0.15	0.16	100.07	0.59	15.45	100.12
Tandem-oxi-16	0.00	0.02	0.04	12.05	58.50	0.29	11.54	0.01	0.21	15.87	0.02	0.14	98.69	0.00	15.87	98.69
Tandem-oxi-17	0.03	0.00	0.01	13.10	57.85	0.41	11.88	0.01	0.26	16.23	0.06	0.16	99.99	0.06	16.18	99.99
Tandem-oxi-18	0.01	0.50	0.04	19.14	47.99	0.24	12.71	0.00	0.16	18.58	0.16	0.11	99.65	2.80	16.06	99.93
Tandem-oxi-19	0.02	0.57	0.04	19.48	47.12	0.29	12.95	0.03	0.24	18.43	0.13	0.14	99.44	3.03	15.71	99.75
Tandem-oxi-20	0.03	0.61	0.05	19.94	47.81	0.22	13.00	0.01	0.33	18.03	0.16	0.15	100.35	2.44	15.84	100.59
Tandem-oxi-21	0.02	1.01	0.00	18.31	50.63	0.32	11.86	0.01	0.20	16.35	0.14	0.13	98.96	0.00	16.35	98.96
Tandem-oxi-22	0.00	0.00	0.02	11.71	59.43	0.29	11.40	0.00	0.25	16.60	0.04	0.13	99.88	0.09	16.52	99.89
Tandem-oxi-23	0.04	0.46	0.00	21.04	46.14	0.27	12.63	0.00	0.37	18.22	0.13	0.18	99.49	2.30	16.15	99.72
Tandem-oxi-24	0.01	0.05	0.02	12.65	56.87	0.23	10.89	0.00	0.37	17.87	0.08	0.18	99.21	0.97	17.00	99.30
Tandem-oxi-26	0.00	0.05	0.04	17.10	53.00	0.23	12.34	0.00	0.38	16.06	0.08	0.10	99.38	0.50	15.61	99.43
Tandem-oxi-27	0.03	0.29	0.02	23.25	43.80	0.34	13.81	0.02	0.22	17.78	0.13	0.11	99.78	3.12	14.97	100.09
Tandem-oxi-28	0.00	0.00	0.02	10.99	59.27	0.52	10.50	0.00	0.22	18.00	0.09	0.15	99.74	0.00	18.00	99.74
Tandem-oxi-29	0.01	0.00	0.00	12.43	58.68	0.33	11.51	0.00	0.20	15.90	0.07	0.15	99.29	0.00	15.90	99.29
Tandem-oxi-30	0.02	0.44	0.00	13.97	47.32	0.23	9.84	0.00	0.27	26.48	0.17	0.13	98.87	8.05	19.24	99.67
Tandem-oxi-31	0.00	0.03	0.04	11.62	58.80	0.38	11.30	0.00	0.31	16.38	0.04	0.15	99.06	0.00	16.38	99.06
Tandem-oxi-32	0.00	0.00	0.02	11.85	59.11	0.33	11.55	0.00	0.25	15.80	0.08	0.13	99.10	0.00	15.80	99.10
Tandem-oxi-33	0.03	0.91	0.01	8.25	57.62	0.36	9.51	0.00	0.30	22.17	0.08	0.14	99.39	2.84	19.61	99.67
Tandem-oxi-34	0.02	0.02	0.01	16.14	54.97	0.31	12.47	0.00	0.23	15.12	0.04	0.10	99.44	0.00	15.12	99.44
Tandem-oxi-35	0.03	0.09	0.03	12.28	58.12	0.29	10.77	0.00	0.14	17.72	0.07	0.08	99.61	0.00	17.72	99.61
Tandem-oxi-36	0.01	0.07	0.00	10.94	59.09	0.33	10.47	0.00	0.32	18.24	0.04	0.12	99.62	0.52	17.77	99.67
Tandem-oxi-37	0.00	0.06	0.02	11.66	58.52	0.37	11.40	0.01	0.29	16.61	0.13	0.15	99.22	0.34	16.31	99.26
Tandem-oxi-38	0.00	0.00	0.01	11.49	58.94	0.42	11.23	0.00	0.16	16.70	0.10	0.12	99.18	0.00	16.70	99.18
Tandem-oxi-39	0.02	1.91	0.03	2.78	54.71	0.39	8.40	0.00	0.38	30.05	0.22	0.07	98.95	9.82	21.21	99.93
Tandem-oxi-40	0.03	0.08	0.00	11.50	58.07	0.19	10.63	0.00	0.38	18.35	0.05	0.14	99.42	1.15	17.32	99.54
Tandem-oxi-41	0.03	0.05	0.00	12.66	57.78	0.25	11.49	0.00	0.14	16.74	0.08	0.11	99.33	0.33	16.45	99.36
Tandem-oxi-42	0.00	0.00	0.01	17.06	53.20	0.25	12.65	0.00	0.19	16.07	0.06	0.12	99.60	0.81	15.33	99.69
Tandem-oxi-43	0.00	0.00	0.00	12.14	58.77	0.32	11.76	0.00	0.18	15.90	0.09	0.14	99.31	0.03	15.88	99.31
Tandem-oxi-44	0.01	0.05	0.02	14.42	55.64	0.14	11.57	0.00	0.24	17.45	0.03	0.15	99.72	1.11	16.46	99.83
Tandem-oxi-45	0.02	0.07	0.03	11.77	54.63	0.14	11.02	0.00	0.25	20.60	0.11	0.11	98.76	4.41	16.63	99.20
Tandem-oxi-46	0.00	0.05	0.02	10.87	58.59	0.23	10.41	0.01	0.32	18.26	0.09	0.12	98.96	0.90	17.46	99.05
Tandem-oxi-47	0.01	0.47	0.02	18.17	48.19	0.28	12.25	0.00	0.35	19.81	0.12	0.15	99.83	3.66	16.51	100.19
Tandem-oxi-48	0.03	0.44	0.02	16.49	46.70	0.14	11.58	0.00	0.29	23.14	0.19	0.11	99.13	6.94	16.90	99.82
Tandem-oxi-50	0.02	0.05	0.04	14.73	54.24	0.10	12.56	0.00	0.15	17.11	0.12	0.07	99.18	2.45	14.90	99.42
Tandem-oxi-51	0.01	0.54	0.00	18.51	48.75	0.22	12.09	0.00	0.12	18.79	0.13	0.12	99.28	2.24	16.78	99.51
Tandem-oxi-52	0.05	0.35	0.01	14.53	49.50	0.12	10.94	0.00	0.38	23.32	0.20	0.11	99.49	6.48	17.48	100.14
Tandem-oxi-53	0.01	0.07	0.00	11.18	59.02	0.23	10.48	0.00	0.38	17.72	0.06	0.14	99.29	0.29	17.45	99.32
Tandem-oxi-54	0.00	0.00	0.02	11.42	59.19	0.32	11.46	0.00	0.23	16.79	0.07	0.14	99.65	0.51	16.34	99.70
Tandem-oxi-55	0.02	0.54	0.00	18.16	48.35	0.26	12.10	0.00	0.27	19.77	0.16	0.16	99.79	3.34	16.77	100.13
Tandem-oxi-56	0.00	0.55	0.00	20.35	47.48	0.28	12.25	0.02	0.38	18.51	0.11	0.15	100.08	1.82	16.87	100.26
Tandem-oxi-57	0.02	0.79	0.03	16.75	48.78	0.17	11.00	0.00	0.23	22.19	0.08	0.13	100.18	3.95	18.63	100.57

Tandem-1. Chromite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
Tandem-oxi-58	0.00	0.01	0.00	12.58	58.19	0.39	11.81	0.00	0.20	16.70	0.06	0.12	100.06	0.48	16.27	100.11
Tandem-oxi-59	0.00	0.43	0.00	13.86	52.91	0.19	10.66	0.00	0.34	21.19	0.10	0.10	99.78	3.45	18.09	100.13
Tandem-oxi-60	0.04	0.46	0.07	19.43	47.32	0.31	12.73	0.00	0.25	18.82	0.15	0.12	99.69	2.99	16.13	99.99
Tandem-oxi-61	0.00	0.07	0.04	13.28	56.57	0.17	11.59	0.00	0.32	17.14	0.07	0.14	99.40	1.13	16.12	99.51
Tandem-oxi-63	0.03	0.47	0.03	18.08	48.31	0.26	12.45	0.01	0.34	19.30	0.15	0.14	99.59	3.59	16.07	99.95
Tandem-oxi-64	0.03	0.06	0.00	12.26	58.64	0.39	11.43	0.01	0.14	16.22	0.06	0.11	99.36	0.00	16.22	99.36
Tandem-oxi-65	0.02	0.41	0.00	18.00	48.60	0.14	11.91	0.00	0.14	19.95	0.11	0.12	99.40	3.49	16.81	99.75
Tandem-oxi-66	0.03	0.01	0.00	11.31	59.08	0.44	11.12	0.00	0.23	17.62	0.05	0.14	100.04	0.47	17.20	100.08
Tandem-oxi-67	0.03	0.00	0.06	15.67	55.30	0.27	12.14	0.01	0.32	15.55	0.06	0.08	99.49	0.00	15.55	99.49
Tandem-oxi-68	0.05	0.67	0.00	22.42	43.84	0.29	12.77	0.01	0.24	19.12	0.17	0.17	99.75	2.81	16.59	100.04
Tandem-oxi-69	0.03	0.72	0.02	20.36	47.75	0.28	13.28	0.00	0.29	17.08	0.16	0.14	100.11	1.66	15.58	100.27
Tandem-oxi-70	0.04	0.35	0.01	17.04	47.72	0.20	11.99	0.00	0.35	21.67	0.13	0.10	99.60	5.71	16.53	100.17
Tandem-oxi-71	0.04	0.07	0.02	18.16	52.42	0.21	12.59	0.01	0.15	15.80	0.09	0.14	99.68	0.13	15.68	99.69
Tandem-oxi-72	0.03	0.00	0.03	15.13	55.80	0.33	11.59	0.01	0.27	16.39	0.06	0.15	99.79	0.00	16.39	99.79
Tandem-oxi-73	0.02	0.55	0.01	11.11	50.83	0.19	9.30	0.01	0.35	26.50	0.15	0.16	99.18	7.62	19.65	99.95
Tandem-oxi-74	0.04	0.42	0.04	19.37	49.39	0.26	12.38	0.00	0.29	17.10	0.14	0.12	99.55	0.77	16.41	99.63
Tandem-oxi-75	0.02	0.00	0.00	12.71	56.93	0.29	10.73	0.00	0.29	18.34	0.07	0.11	99.48	0.89	17.54	99.57
Tandem-oxi-76	0.01	0.00	0.02	9.98	56.62	0.15	9.46	0.00	0.30	22.13	0.07	0.13	98.86	3.84	18.67	99.25
Tandem-oxi-77	0.03	0.50	0.03	18.05	47.42	0.18	12.17	0.01	0.46	20.36	0.14	0.13	99.50	4.53	16.29	99.95
Tandem-oxi-78	0.02	0.72	0.00	12.60	54.65	0.24	10.53	0.01	0.23	20.22	0.12	0.10	99.44	2.01	18.41	99.64
Tandem-oxi-79	0.04	0.61	0.04	20.67	44.90	0.21	12.51	0.01	0.32	19.85	0.18	0.05	99.40	3.75	16.47	99.77
Tandem-oxi-80	0.03	0.60	0.03	18.52	48.07	0.26	11.94	0.02	0.32	19.52	0.14	0.14	99.59	2.75	17.04	99.86
Tandem-oxi-81	0.03	0.05	0.00	14.40	56.46	0.41	12.16	0.00	0.21	15.80	0.09	0.14	99.74	0.00	15.80	99.74
Tandem-oxi-82	0.02	0.57	0.00	18.36	47.67	0.23	11.93	0.00	0.06	20.15	0.09	0.14	99.22	3.33	17.16	99.56
Tandem-oxi-83	0.02	0.46	0.01	20.45	45.41	0.38	12.13	0.00	0.28	19.73	0.12	0.15	99.13	3.01	17.01	99.43
Tandem-oxi-84	0.02	0.45	0.00	21.32	45.92	0.25	13.61	0.00	0.21	17.21	0.15	0.09	99.23	2.69	14.79	99.50
Tandem-oxi-85	0.01	0.07	0.00	14.25	55.71	0.22	11.88	0.00	0.14	17.16	0.08	0.12	99.64	1.13	16.14	99.75
Tandem-oxi-86	0.04	0.53	0.04	20.24	47.13	0.26	13.14	0.01	0.17	17.82	0.12	0.15	99.64	2.45	15.61	99.88

Tandem-1. Clinopyroxene.

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Tandem-pyx-1	55.20	0.05	2.78	0.37	16.64	21.50	0.07	1.70	0.07	1.77	0.00	100.28
Tandem-pyx-2	54.98	0.07	2.74	0.38	16.42	21.48	0.04	1.93	0.08	1.73	0.00	99.97
Tandem-pyx-3	54.94	0.08	2.62	0.39	16.52	21.75	0.07	1.75	0.06	1.70	0.01	100.00
Tandem-pyx-4	55.26	0.07	2.61	0.36	16.57	21.45	0.05	1.68	0.10	1.72	0.00	99.99
Tandem-pyx-5	54.80	0.09	2.63	0.33	16.32	21.42	0.06	1.85	0.06	1.70	0.00	99.40
Tandem-pyx-6	55.37	0.07	2.69	0.31	16.38	21.36	0.03	1.73	0.08	1.75	0.00	99.90
Tandem-pyx-7	54.67	0.06	2.67	0.41	16.33	21.49	0.10	1.75	0.08	1.74	0.01	99.42
Tandem-pyx-9	55.20	0.10	2.66	0.35	16.38	21.69	0.05	1.70	0.07	1.76	0.01	100.11
Tandem-pyx-10	55.31	0.10	2.60	0.47	16.57	21.71	0.03	1.77	0.03	1.71	0.01	100.45
Tandem-pyx-11	54.84	0.08	2.54	0.26	16.52	21.85	0.04	1.68	0.00	1.67	0.01	99.61
Tandem-pyx-12	55.08	0.08	2.65	0.32	16.43	21.84	0.01	1.53	0.06	1.69	0.01	99.83
Tandem-pyx-13	54.83	0.07	2.78	0.39	16.47	21.53	0.01	1.61	0.05	1.72	0.00	99.59
Tandem-pyx-14	55.42	0.09	2.71	0.33	16.47	21.75	0.10	1.72	0.09	1.68	0.01	100.50
Tandem-pyx-15	55.30	0.05	2.69	0.37	16.49	21.89	0.00	1.74	0.06	1.73	0.01	100.46
Tandem-pyx-16	54.91	0.08	2.63	0.42	16.42	21.61	0.08	1.73	0.03	1.72	0.01	99.76
Tandem-pyx-17	55.25	0.08	2.58	0.46	16.43	21.63	0.07	1.58	0.05	1.70	0.01	99.97
Tandem-pyx-18	55.04	0.06	2.54	0.37	16.23	21.68	0.02	1.68	0.07	1.66	0.00	99.48
Tandem-pyx-19	54.89	0.08	2.58	0.40	16.42	21.83	0.06	1.80	0.02	1.68	0.00	99.91
Tandem-pyx-20	54.97	0.07	2.61	0.34	16.37	21.79	0.06	1.65	0.03	1.69	0.01	99.73
Tandem-pyx-21	55.46	0.08	2.72	0.39	16.33	21.67	0.03	1.71	0.08	1.73	0.01	100.34
Tandem-pyx-22	54.85	0.07	2.82	0.50	16.37	21.41	0.06	1.62	0.05	1.75	0.01	99.64
Tandem-pyx-23	55.27	0.06	2.84	0.35	16.51	21.54	0.08	1.62	0.07	1.70	0.00	100.16
Tandem-pyx-24	55.34	0.09	2.73	0.36	16.48	21.59	0.03	1.61	0.07	1.65	0.00	100.09
Tandem-pyx-25	54.81	0.10	2.53	0.30	16.68	21.65	0.08	1.76	0.10	1.66	0.01	99.81
Tandem-pyx-26	55.15	0.07	2.75	0.33	16.34	21.47	0.07	1.83	0.01	1.69	0.01	99.86
Tandem-pyx-27	55.51	0.06	2.76	0.27	16.43	21.43	0.03	1.62	0.06	1.70	0.01	100.02
Tandem-pyx-29	54.86	0.06	2.56	0.41	16.45	21.83	0.01	1.72	0.04	1.68	0.01	99.76
Tandem-pyx-30	55.00	0.10	2.48	0.32	16.48	21.47	0.02	1.73	0.04	1.66	0.00	99.45
Tandem-pyx-31	55.24	0.05	2.62	0.37	16.34	21.59	0.06	1.69	0.04	1.69	0.00	99.81
Tandem-pyx-32	55.18	0.07	2.72	0.40	16.43	21.50	0.03	1.75	0.02	1.74	0.01	99.97
Tandem-pyx-33	55.00	0.10	2.69	0.30	16.47	21.77	0.04	1.68	0.05	1.71	0.01	99.94
Tandem-pyx-34	55.02	0.08	2.63	0.36	16.56	21.82	0.04	1.71	0.07	1.64	0.01	100.07
Tandem-pyx-35	54.98	0.08	2.60	0.32	16.33	21.54	0.06	1.82	0.05	1.69	0.02	99.61
Tandem-pyx-36	55.13	0.09	2.96	0.34	16.37	21.68	0.08	1.74	0.07	1.79	0.01	100.38
Tandem-pyx-37	55.27	0.07	2.68	0.46	16.50	21.65	0.01	1.64	0.04	1.68	0.02	100.15
Tandem-pyx-38	55.15	0.06	2.61	0.37	16.61	21.64	0.08	1.80	0.04	1.68	0.01	100.18
Tandem-pyx-39	55.25	0.08	2.85	0.45	16.61	21.40	0.06	1.70	0.03	1.73	0.01	100.30
Tandem-pyx-40	54.92	0.05	2.97	0.37	16.39	21.68	0.07	1.74	0.05	1.73	0.01	100.12
Tandem-pyx-41	54.97	0.05	2.91	0.33	16.48	21.61	0.04	1.74	0.05	1.74	0.00	100.05
Tandem-pyx-42	55.12	0.10	2.77	0.36	16.41	21.50	0.02	1.65	0.04	1.72	0.00	99.81
Tandem-pyx-43	55.06	0.06	2.71	0.26	16.43	21.43	0.05	1.69	0.10	1.73	0.01	99.66
Tandem-pyx-44	55.05	0.05	2.70	0.36	16.39	21.61	0.08	1.64	0.05	1.71	0.01	99.79
Tandem-pyx-46	55.06	0.07	2.78	0.32	16.39	21.45	0.06	1.80	0.08	1.71	0.01	99.86
Tandem-pyx-48	55.08	0.06	2.88	0.28	16.51	21.63	0.05	1.76	0.11	1.73	0.01	100.24
Tandem-pyx-49	55.06	0.07	2.54	0.39	16.30	21.73	0.07	1.72	0.06	1.65	0.01	99.76
Tandem-pyx-50	55.02	0.04	2.81	0.33	16.25	21.58	0.07	1.67	0.05	1.74	0.00	99.69
Tandem-pyx-51	55.18	0.07	2.61	0.33	16.44	21.59	0.05	1.68	0.11	1.71	0.02	99.91
Tandem-pyx-52	54.81	0.07	2.60	0.30	16.59	21.67	0.04	1.77	0.12	1.67	0.01	99.77
Tandem-pyx-53	54.74	0.10	2.66	0.40	16.07	21.39	0.06	1.68	0.09	1.70	0.01	99.02
Tandem-pyx-54	55.24	0.08	2.70	0.30	16.44	21.68	0.07	1.79	0.08	1.70	0.01	100.21
Tandem-pyx-55	55.34	0 08	2.68	0.33	16.50	21.68	0.03	1.65	0.07	1.69	0.01	100.19
Tandem-pyx-56	55.08	0.06	2.85	0.41	16.39	21.44	0.08	1.84	0.05	1.71	0.01	100.04
Tandem-pyx-57	54.85	0.07	2.88	0.31	16.41	21.61	0.05	1.56	0.11	1.72	0.00	99.70
Tandem-pyx-58	55.17	0.05	2.75	0.44	16.23	21.85	0.07	1.75	0.10	1.69	0.01	100.24
Tandem-pyx-59	55.03	0.04	2.96	0.29	16.31	21.38	0.02	1.72	0.07	1.74	0.00	99.71

Tandem-1. Clinopyroxene. continued

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Tandem-pyx-60	55.03	0.04	2.56	0.35	16.53	21.67	0.05	1.67	0.06	1.66	0.00	99.77
Tandem-pyx-61	55.22	0.08	2.73	0.35	16.42	21.56	0.07	1.64	0.09	1.77	0.00	100.06
Tandem-pyx-62	55.15	0.08	2.64	0.54	16.48	21.52	0.00	1.81	0.07	1.72	0.00	100.16
Tandem-pyx-63	54.78	0.11	2.57	0.35	16.59	21.75	0.07	1.72	0.06	1.65	0.00	99.78
Tandem-pyx-64	54.98	0.06	2.55	0.44	16.45	21.64	0.08	1.82	0.03	1.68	0.01	99.87
Tandem-pyx-65	54.83	0.09	2.77	0.37	16.53	21.61	0.06	1.77	0.03	1.73	0.00	99.93
Tandem-pyx-66	55.45	0.07	2.72	0.38	16.36	21.54	0.03	1.70	0.07	1.73	0.01	100.18
Tandem-pyx-67	55.03	0.09	2.74	0.32	16.56	21.58	0.03	1.58	0.06	1.69	0.01	99.85
Tandem-pyx-68	55.07	0.06	2.91	0.35	16.43	21.49	0.08	1.71	0.08	1.75	0.00	100.06
Tandem-pyx-69	55.48	0.08	2.77	0.49	16.75	21.61	0.06	1.83	0.04	1.71	0.01	100.95
Tandem-pyx-70	55.55	0.08	2.70	0.43	16.41	21.70	0.07	1.75	0.03	1.66	0.00	100.51
Tandem-pyx-71	55.11	0.06	2.68	0.36	16.41	21.51	0.08	1.79	0.03	1.71	0.00	99.86
Tandem-pyx-72	55.29	0.06	2.63	0.32	16.54	21.78	0.06	1.74	0.06	1.68	0.00	100.30
Tandem-pyx-73	55.31	0.10	2.71	0.37	16.45	21.46	0.00	1.75	0.02	1.72	0.01	100.05
Tandem-pyx-74	54.95	0.06	2.65	0.34	16.53	21.73	0.06	1.58	0.07	1.68	0.01	99.79
Tandem-pyx-75	54.91	0.10	2.88	0.37	16.44	21.55	0.04	1.62	0.04	1.72	0.00	99.80
Tandem-pyx-76	54.90	0.11	2.93	0.31	16.35	21.80	0.07	1.52	0.05	1.67	0.00	99.84
Tandem-pyx-77	55.29	0.08	3.38	0.46	16.43	21.30	0.04	1.90	0.07	1.76	0.01	100.85

Tandem-1. Orthopyroxene

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Tandem-pyx-8	58.14	0.00	0.49	0.27	35.33	0.33	0.11	5.09	0.05	0.05	0.01	100.07
Tandem-pyx-28	58.17	0.00	0.43	0.24	35.55	0.25	0.14	5.16	0.08	0.05	0.00	100.26
Tandem-pyx-45	58.15	0.06	0.40	0.27	35.21	0.38	0.13	5.16	0.11	0.05	0.00	100.12

Tandem-1. Olivine

Sample	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	NiO	Na2O	K2O	Total
Tandem-oli-1	40.15	0.02	0.00	0.00	44.82	0.01	0.19	14.31	0.41	0.01	0.00	99.93
Tandem-oli-2	41.22	0.00	0.00	0.01	49.80	0.05	0.13	8.30	0.44	0.01	0.00	99.95
Tandem-oli-3	41.77	0.00	0.00	0.04	50.98	0.08	0.13	7.11	0.47	0.00	0.00	100.58
Tandem-oli-4	41.71	0.00	0.00	0.01	50.44	0.04	0.14	7.76	0.46	0.00	0.00	100.56
Tandem-oli-5	41.36	0.03	0.00	0.00	50.25	0.05	0.14	7.64	0.42	0.00	0.00	99.89
Tandem-oli-6	41.46	0.00	0.00	0.00	49.91	0.06	0.13	8.30	0.43	0.01	0.00	100.31
Tandem-oli-7	41.78	0.00	0.00	0.02	50.64	0.03	0.10	7.88	0.43	0.00	0.01	100.90
Tandem-oli-8	41.79	0.01	0.00	0.01	50.96	0.08	0.12	7.16	0.44	0.00	0.00	100.58
Tandem-oli-9	41.57	0.02	0.00	0.01	50.57	0.05	0.15	7.74	0.45	0.01	0.00	100.57
Tandem-oli-10	40.51	0.04	0.00	0.03	46.98	0.04	0.10	11.81	0.39	0.03	0.00	99.91
Tandem-oli-11	41.65	0.00	0.00	0.03	50.84	0.01	0.05	7.25	0.36	0.00	0.02	100.21
Tandem-oli-12	41.82	0.01	0.00	0.00	50.81	0.01	0.12	7.56	0.35	0.00	0.02	100.70
Tandem-oli-13	41.53	0.02	0.00	0.02	50.68	0.03	0.12	7.79	0.54	0.00	0.00	100.73
Tandem-oli-15	41.59	0.04	0.00	0.01	50.51	0.05	0.14	8.05	0.44	0.00	0.04	100.88

Tandem. Corundum

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total
Tandem-cor-1	0.02	0.00	0.03	95.20	4.10	0.02	0.12	0.00	0.06	0.31	0.01	0.01	99.87
Tandem-cor-2	0.00	0.00	0.00	93.90	4.94	0.05	0.09	0.00	0.00	0.35	0.00	0.01	99.35
Tandem-cor-3	0.00	0.02	0.00	94.86	3.84	0.04	0.05	0.00	0.00	0.30	0.00	0.00	99.10
Tandem-cor-4	0.02	0.03	0.00	94.72	4.99	0.01	0.06	0.00	0.00	0.34	0.00	0.00	100.16
Tandem-cor-5	0.02	0.05	0.00	93.33	5.68	0.02	0.15	0.00	0.01	0.38	0.01	0.00	99.66
Tandem-cor-6	0.00	0.00	0.07	95.05	4.12	0.11	0.08	0.00	0.03	0.28	0.01	0.02	99.76
Tandem-cor-7	0.02	0.00	0.05	94.25	4.91	0.11	0.02	0.01	0.00	0.35	0.02	0.00	99.73
Tandem-cor-8	0.01	0.04	0.00	94.02	5.37	0.07	0.05	0.00	0.04	0.33	0.00	0.03	99.95
Tandem-cor-9	0.01	0.00	0.02	95.22	3.99	0.07	0.13	0.01	0.00	0.36	0.02	0.02	99.86
Tandem-cor-10	0.01	0.01	0.04	94.19	5.27	0.02	0.09	0.00	0.01	0.39	0.00	0.00	100.04
Tandem-cor-11	0.00	0.08	0.00	95.45	3.82	0.00	0.11	0.01	0.01	0.40	0.01	0.00	99.88
Tandem-cor-12	0.01	0.00	0.02	96.00	3.36	0.02	0.06	0.00	0.00	0.27	0.00	0.00	99.73
Tandem-cor-13	0.01	0.08	0.00	93.69	5.44	0.02	0.11	0.00	0.02	0.36	0.00	0.02	99.74
Tandem-cor-14	0.02	0.00	0.03	94.55	4.31	0.11	0.02	0.00	0.01	0.43	0.00	0.00	99.47
Tandem-cor-15	0.02	0.00	0.00	94.41	4.48	0.07	0.08	0.00	0.00	0.31	0.00	0.00	99.37
Tandem-cor-16	0.03	0.02	0.04	93.89	5.35	0.04	0.09	0.00	0.00	0.27	0.00	0.00	99.72

Tandem-1. Magnetite

Sample	SiO2	TiO2	Nb2O5	Al2O3	Cr2O3	V2O5	MgO	CaO	MnO	FeO*	NiO	ZnO	Total	Fe2O3	FeO	Total
Tandem-oxi-25	0.22	0.75	0.00	0.22	0.04	0.43	0.23	0.01	0.42	88.51	0.03	0.02	90.87	97.57	0.72	100.65

Metric Conversion Table

Conversion from SI to Imperial			Conversion from Imperial to SI		
SI Unit	*Multiplied by*	*Gives*	*Imperial Unit*	*Multiplied by*	*Gives*
		LENGTH			
1 mm	0.039 37	inches	1 inch	**25.4**	mm
1 cm	0.393 70	inches	1 inch	**2.54**	cm
1 m	3.280 84	feet	1 foot	**0.304 8**	m
1 m	0.049 709	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	**1.609 344**	km
		AREA			
1 cm^2	0.155 0	square inches	1 square inch	**6.451 6**	cm^2
1 m^2	10.763 9	square feet	1 square foot	**0.092 903 04**	m^2
1 km^2	0.386 10	square miles	1 square mile	2.589 988	km^2
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
		VOLUME			
1 cm^3	0.061 023	cubic inches	1 cubic inch	**16.387 064**	cm^3
1 m^3	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m^3
1 m^3	1.307 951	cubic yards	1 cubic yard	0.764 554 86	m^3
		CAPACITY			
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	**4.546 090**	L
		MASS			
1 g	0.035 273 962	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 747	ounces (troy)	1 ounce (troy)	**31.103 476 8**	g
1 kg	2.204 622 6	pounds (avdp)	1 pound (avdp)	**0.453 592 37**	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	**907.184 74**	kg
1 t	1.102 311 3	tons (short)	1 ton (short)	**0.907 184 74**	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	**1016.046 908 8**	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	**1.016 046 90**	t
		CONCENTRATION			
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

OTHER USEFUL CONVERSION FACTORS

	Multiplied by	
1 ounce (troy) per ton (short)	31.103 477	grams per ton (short)
1 gram per ton (short)	0.032 151	ounces (troy) per ton (short)
1 ounce (troy) per ton (short)	20.0	pennyweights per ton (short)
1 pennyweight per ton (short)	0.05	ounces (troy) per ton (short)

Note: Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries, published by the Mining Association of Canada in co-operation with the Coal Association of Canada.

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